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Industrial Clinics—National Department of Public Health—Health Slogans—Types of Fatigue—Anthrax in Massachusetts—Vaccines in Public Health—School Meals and Malnutrition—and more discussion, "What is the matter with Public Health." Also the Editorials and customary Notes Section

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THE NATION'S GREATEST NEED: A NATIONAL DEPARTMENT OF HEALTH

SEALE HARRIS, M. D.,

Editor, Southern Medical Journal, Birmingham, Ala.

Extracts from the President's Address, American Medical Editors Association, New Orleans, La., April 26-27, 1920.

NO one doubts the need for increasing federal activities in coöperation with the state public health authorities for the prevention of disease, but there is an honest difference of opinion as to how the desired results may be obtained. Personally I feel that a national department of health is the best plan for securing adequate protection for the more than 100,000,000 citizens whose health and lives should be safeguarded by our Government. The very fact that the Nation considered the prevention of disease of sufficient importance to create a department charged with carrying on health work would create in the minds of the people of the United States a respect for personal hygiene and public sanitation that would mean much in the coöperation by the public with the national health authorities in their effort to prevent disease.

Health and life are surely of as vital importance to the welfare of the nation as agriculture, commerce, and labor, the governmental functions of which are provided for in great departments, with officials at their head who sit in the President's Cabinet. Property and life are protected from foreign invasion by the War and Navy Departments. Is it not of as much importance to the welfare of the Nation to protect its citizens from preventable diseases, enemies that disable and kill more people in the United States every year than have been wounded and slain in all the wars in our history?

"Health is a purchasable commodity" is a trite saying; but it may be considered as a truism that the effectiveness of national public health work depends to a large extent upon the size of the government appropriations for that purpose. The United States Public Health Service has done magnificent work considering the penurious policy of the government in providing funds for the prevention of disease. It is now one of the small bureaus of the Treasury Department; and the Secretary of the Treasury probably devotes as much as eight hours a month to the consideration of the Bureau of Public Health, and then he feels that he is taking time that is needed for what he regards is more important business. Does any one doubt but that a cabinet officer devoting all his time to the duties of Sec-

retary of Health would be able to secure larger appropriations and more effective administration for his department than could be secured in any other way?

A cabinet officer must be close to the President, and he also must be a man of influence in the administration or he would not have received his appointment. It is therefore certain that the administration in control of both branches of Congress would support any measure that he might advocate. A physician in the President's Cabinet, in one year, could bring about more constructive legislation for the prevention of disease than we have been able to secure in a decade. From the viewpoint of practical politics, an important consideration when the public treasury has to be opened for appropriations, a department of health with a physician in the President's Cabinet is our best hope for adequate support for national public health work.

THE SUGGESTED COMMISSION OF HEALTH

There are those who favor a commission of health, somewhat like the Interstate Commerce Commission, feeling that such a plan would remove public health from the mire of politics. In the first place, it is impossible, and I am not sure that it is desirable, to eliminate politics from governmental activities; because all the commissions now in existence are entirely dependent upon Congress for appropriations. The practical politicians in the Senate and House of Representatives are not always impressed by the needs of the country, unless the party in power is responsible for the conduct of the particular matter under consideration. We have witnessed in the past few months the effort to destroy the usefulness of the Federal Trade Commission, and the Tariff Commission, by cutting their appropriations to a point where most of their activities would cease. A health commission would be without political influence and it would be difficult for it to get the money for efficient work. Undoubtedly it would be ideal to have a number of trained sanitarians as life members of a health commission but in the opinion of many it could never expand and be the efficient force for public health on the large scale that is to be expected in a great country like the United States.

PREPARING THE BILL FOR A DEPARTMENT OF HEALTH

In my opinion there is little doubt that the great majority of physicians in the United States desire a national department of health. There are already several bills in the Senate and the House of Representatives providing for such legislation. The bills of Senator Owen, democrat, of Oklahoma, and of Senator France, republican, of Maryland, are best known to the medical profession. Both are good, though there are differences in their provisions. It seems to me that a committee consisting of three state health officers, the Surgeon General and two other surgeons of the U. S. Public Health Service, and three physicians representing the general medical profession should confer with the committees on health and sanitation in the Senate and House and agree upon a bill. This could be done in a week and the bill can be introduced both in the Senate and House. This bill should be as brief as possible, providing only for the establishment of a department of health with a cabinet officer at its head. There should be a clause providing that the present U. S. Public Health Service should be the nucleus for the department of health, and another providing for an appropriation for the first year sufficient for the proper organization, including the salaries of the secretary and his assistants, whose first duty should be to investigate the public health activities in all the departments of the government; and when they are familiar with them, they could work out a plan and prepare a bill correlating them under the department of health. The Secretary of Health and his

mediate assistants would most likely be of the same political faith as the President and the majorities in the Senate and House. They would therefore be in a position to secure the legislation, and the appropriation to provide, for an adequate national department of health.

The Secretary of Health would also be associated with the heads of the other departments of the government that now carry on functions that should be in the department of health. For instance, the Departments of Agriculture, Labor, and Commerce are all engaged in activities that properly belong to the public health service; and the Secretaries of those departments will have to be dealt with diplomatically to keep them from opposing legislation that they might think would reduce the prestige of their departments.

It has been suggested that a committee be appointed by the President, and that Congress be called upon to appropriate sufficient funds for its maintenance, with powers to investigate all the governmental health activities; and that this committee would then be in a position to recommend comprehensive legislation providing for advanced public health legislation. This plan would involve a delay that might prove fatal to any proposed constructive legislation; and in its work the suspicion of the various heads of departments would be aroused and they might become hostile to any legislation that would take away any of their functions. Investigating committees are not very popular in Washington because they have been abused so much. It is also unfortunately true that Congress does not take investigating committees very seriously.

ORGANIZING THE FIGHT FOR A DEPARTMENT OF HEALTH

If a department of health or any other advanced legislation for public health work is enacted in the next few years, it is time that the organized medical profession begin a systematic campaign to pledge the support of the candidates for President, and all the candidates for the Senate and House of Representatives, as well as those now in office who will hold over next year. A man who is in the race for an office is naturally in a more receptive frame of mind than after his election. The best method of securing the support of a candidate or an office holder is for his friends and supporters at home to present the matter to him.

It is also desirable for him to know that the general public desires the proposed legislation. Public health is a business proposition and if the matter is brought to their attention most of the commercial bodies of the country would endorse a national department of health and transmit copies of their resolutions to the senators and congressmen in their states. Women will exert a wider influence on legislation than ever before, now that they will be granted suffrage. They are more interested in health matters than men and if their support is enlisted they will let our national legislators know how the mothers and homemakers feel on the subject. I have had some experience with public men and I am convinced that most of them act from vinced that proposed legislation has the right motives. When they are conmerit they will give it their hearty support. Surely there can be no more meritorious legislation than that which proposes to protect human life; and since the medical profession knows the need for a department of health, we should do our duty in presenting the case to our national legislators.

THE A. M. A.'S GREAT OPPORTUNITY

The American Medical Association has a great opportunity at this time to get the organized medical profession to work in the interest of a department of health. The various state medical associations, whose members make up the membership of the American Medical Association, have already passed resolutions favoring a national department of health; and the American Medical Association

has funds that can be used for placing information regarding health matters before the public. Its Council on Health and Public Instruction should have added to assist its Secretary, Dr. Frederick R. Green, sufficient force to have committees appointed by every national, state, and local medical society in the country, who could take up the question with their congressmen and senators. These committees could also conduct publicity campaigns in their various localities. Through such committees and with the publicity department of the A. M. A., in a month every man now in the United States Senate and House of Representatives who will hold over until after next March, and every candidate for the next Congress, can be conferred with.

The state health officers in each state should be the chairmen of state committees and they could appoint committees in every congressional district which are in close touch with their senators and congressmen in their states.

SYSTEMATIC EFFORT NEEDED

The medical profession should go at this thing in a systematic, thorough and practical way, not as organized labor has done with threats to office-holders if they fail to support legislation proposed to help one class; but with the facts, pointing out that a national department of health would not benefit physicians any more than any other class of citizens, but that it would save thousands of lives every year.

An organization for presenting the question to our national legislators should be perfected at once. Anything like propaganda should be avoided because the word has been made odious by the Germans; and senators and congressmen are not impressed by it as formerly, but the needs for a department of health should be presented to our national legislators from as many sources as possible. This is not a partisan question, because it does not make any difference whether the department of health is sponsored by a democratic or a republican administration, every right-minded physician of both parties will favor it. It is not a question of who is right, but of what is best. It is, however, a broad political question and practical politics on the part of organized medicine will get results that will redound to the everlasting credit of those who "put over" the department of health.

GREAT BRITAIN'S MINISTRY OF HEALTH

Disraeli, in one of his most important messages to his countrymen, said: "Public health is the foundation upon which rests the happiness of the people and the welfare of the State. Reform directed toward the advancement of public health must ever take precedence of all others." Great Britain was a long time in following Disraeli's advice; but last year that great country led the world in establishing a Ministry of Health with a physician in the King's Cabinet. Britain's loss of man power by the war demanded measures for the conservation of life and her practical statesmen were not slow in meeting the need. Our war experience opened our eyes to our defects when 29% of the young men of the United States proved physically unfit for military service. One child out of three dies before it reaches five years of age and many of those that live are defective. There has never been in our country greater demand than now for able-bodied men and women; and we should follow Britain's example and meet the nation's greatest need by establishing an adequate national department of health.

A PROGRAM FOR ORGANIZING AND COORDINATING INDUSTRIAL CLINICS

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Read before the Section on Industrial Hygiene, American Public Health Association, New Orleans, La., October 28, 1920.

To win success the industrial clinic must be neutral ground with domination exercised by neither the employer nor the employees. It is an industrial necessity where both parties must pull together. Further, it must be standardized. Towards this the clinic itself, as a clinic and research center, can aid. The author outlines plans of organization.

ECONOMIC CONDITIONS FORCING AN INDUSTRIAL HEALTH PROGRAM

THERE are certain facts in industrial life toward which is it worth while to direct attention because they indicate the need for a comprehensive industrial health program. In the first group are those which explain the reduction in the former over-supply of able bodied industrial workers, viz:

1. The results of the draft;[1]
2. The deaths from battle and diseases and the injured in war;[2]
3. The deaths in epidemics;[3]
4. The killed and injured in industry;[4]
5. The decline in immigration and the present increase in emigration—a loss not replenished from the ranks of native parentage.[5]

In the second group are those which have a more definite economic significance and which have arisen partly in consequence of the first group, such as:

1. High nominal wages—wages which, as now distributed, do not come out of profits so much as out of the prices that are charged to the consumer.
2. Shorter hours not always based on physical or cultural necessity, but at times on the uneconomic principle of more work for more workers. Wage increases and shorter production hours have not, in some cases, tended to increase production, but rather to decrease it, thereby further increasing the cost of living.
3. Financial problems that confront capital and labor alike and that arise from the necessity of competing with foreign trade in the foreign field, complicated by the unreliable condition of European finances.

As conditions now stand, the industrial world is confronted by a decrease in the amount of available cheap labor and an increase in the cost of production. Its problem is, therefore, how to offset this decreased labor supply and how to lower production costs. It is this problem which helps to make an industrial health program an economic necessity. Heretofore industry has not given much attention to the health of the worker. The plant manager has been concerned about cheap raw materials, free power, immigrant labor, low wages, and, when it has been forced upon him, labor saving machinery. Frederick Taylor[1] introduced the idea of efficiency in production through standardized motions—regularized activity and periodic rest. Now shop committees[2] are being organized with the workers participating in profits gained by reducing wastage and increasing output.[3] It is partly due to this new program, which stimu-

1. See reports of Provost Marshal General, 1919.
2. Records Statistical Division, Adjutant General's Office, Washington, D. C.
3. Epidemiology of Influenza, Wade H. Frost, M. D., Vol. 34, No. 33, Public Health Reports; U. S. Public Health Service 1919; Health Insurance, B. S. Warren, M. D., and Edgar Sydenstricker, Public Health Bulletin No. 76, U. S. P. H. S.
4. The Safety Movement in the Iron and Steel Industry, Bulletin 234, Bureau of Labor Statistics; also other Industrial Accident Bulletins of the Bureau of Labor Statistics.
5. Report of Commissioner of Immigration 1919, U. S. Department of Labor.

1. *The Principles of Scientific Management*, Frederick W. Taylor.
2. American Company Shop Committee Plans, Bur. Indust. Res., New York City.
3. *Man to Man*, John Leitch.

lates maximum production at minimum cost and forces a recognition of the handicap of the half-well worker, and the loss resulting from sickness, injury, death or turnover of the skilled mechanic, and partly because of the increased value of the worker due to the decreased supply, that plans are being more frequently adopted for plant medical and surgical departments[1] and more emphasis is being placed on the necessity to eliminate occupational health and safety hazards.[2] Full credit muts also be given here to the influence of the agitation for accident compensation and for health insurance.

THE NEED FOR THE INDUSTRIAL CLINIC

Into this program for industrial health the industrial clinic fits, by virtue of the fact that it is a neutral agency for physical examinations and advice, and can be made a research agency for the determination of occupational health hazards. In some industries where plant medical and surgical departments have been organized the workers have developed a strong dislike for physical examinations because they allege such are used for the purpose of discriminating against the employment of union men on the one hand and of handicapped men on the other. Irrespective of the accuracy of their contention, the suspicion of any large part of the working group as to the honesty of such examinations forces a need for a neutral agency where medical council based on a comprehensive knowledge of their physical condition may be given to all workers. Moreover, there is a further reason for the industrial clinic arising from the necessity to acquaint the general practitioner in industrial centers with the diagnostic, therapeutic and prophylactic phases of occupational diseases, and to instill into plant managers and workers a knowledge of health hazards and the protective measures against such hazards. In addition, experience has shown that the legislative impulse, always strong, seeks, when aroused in a new field, to establish legal standards to control conduct. Such standards, unless founded on a scientific basis, are apt to cause injustice. It is almost invariably true that the impulse to the enactment of legal standards is emotional, founded upon injustice or an alleged injustice; or is a social reflex from either a real or an alleged anti-social act. In the field of occupational hazards the danger of establishing unworkable standards is present and may become real unless the information is supplied which will give a scientific background for the laws enacted. That states is seen in standards adopted governing the manufacture and use of certain hazardous and alleged hazardous elements and compounds.

PRESENT DETERMINATION OF OCCUPATIONAL POISONS UNRELIABLE

In the literature circulating in this country today relative to industrial poisonings the influence of the compilation of Sommerfeld & Fisher[1] is markedly shown. Some new names of occupational poisons appear in pamphlets and books, but all too often the basis for claims set up is usually one or two cases of alleged poisoning reported among workers engaged in handling suspected material. Often there is insufficient evidence that such cases have been followed through with enough thoroughness to eliminate other predisposing or exciting factors and thereby to justify the deductions announced.

As a matter of fact there is much uncertainty about the health hazards of the various trades. Many branches of industry have been listed where poisonous fumes, gases or liquids are present.[2] Some are known to be a serious menace to health; how many actually are a

1. *Studies of the Medical and Surgical Care of Industrial Workers*, Public Health Bulletin No. 99, U. S. P. H. S., C. D. Selby, M. D.
2. *The Occupational Diseases*, W. Gilman Thompson, M. D.

1. Bull. 100, List of Indust. Poisons, Bur. Labor Statistics.
2. *Diseases of Occupations and Vocational Hygiene*, Kober & Hanson, p. 740 ff. *Industrial Health Hazards and Occupational Diseases in Ohio*, Emery R. Hayhurst, M. D.; *The Occupational Disease*, W. Gilman Thompson, p. 665, ff.

menace is not known. Most dusts are injurious. Some markedly so, while the hazard from others is still in doubt.

How many processes unnecessarily cause an amount of sustained muscular strain or cause organic weakness sufficient to contribute to the incidence of disease is problematical. Fatigue through monotony; eye strain through faulty lighting; nerve deterioration through excessive noises; the impairment of muscular force through labor in damp places or amid insanitation, all are mooted problems in so far as the determination of the extent of their influence upon workers thus exposed is concerned.

THE INDUSTRIAL CLINIC AS RESEARCH CENTER

Various methods have been tried to secure information on mooted occupational health problems. One is straight research. This is efficacious, essential, but slow. It has some by-products in establishing principles which have an economic value. It often calls for extensive laboratory methods without which no positive results would be obtainable. Without restricting the work of analysts in this field, the time has come when the specialists in the various fields of medicine and surgery practicing in industrial centers, should be brought together for consulting, if not practicing service, in what for lack of a better name may be called an industrial clinic. The details as to plan of organization, methods of work and rates of such an institution, may be matters of individual opinion, and may be determined as coöperating groups and local conditions may dictate. The fact remains that such clinics are essential in all industrial centers. Standardized as nearly as possible by the introduction and use of common forms for physical examinations, a common nomenclature, record system and methods of interpretation, with coöperative endeavor when specific problems need consideration, such clinics should be able to collect a mass of information which, when analyzed, would uncover occupational diseases and hazards and, as previously stated, the diagnostic character and the therapeutic and prophylactic technique pertaining thereto. They would permit also of engineering research to eliminate or to reduce to a minimum the hazards discovered.

VALUE OF CLINIC TO WORKERS

Briefly stated, wherever clinics are organized the wage earners would have a right to expect the following services:

1. Complete physical examinations yearly or as often as conditions require;

2. Supplementary examinations by specialists when the preliminary examinations determine the necessity therefor;

3. Confidential advice in relation to physical fitness for occupations requiring special physical qualifications. If handicapped by defective vision, the loss of an arm or leg, valvular heart trouble or other infirmity, advice as to the kind of work best qualified physically to perform; or if otherwise disqualified and for causes that might, by treatment, be overcome, advice as to the necessary measures to be adopted.

4. If feeling indisposed, advice as to physical condition, and if symptoms indicate an ailment that requires treatment, further advice as to such treatment;

5. When employed on an alleged hazardous job, or when exposed to alleged poisonous compounds, advice as to the extent of the hazard and of the measures that may be taken to mitigate, or to eliminate it. If the former only is possible, consultation service as often as necessary to determine any ill effects from such exposure and to receive advice when, for the preservation of health, to change employment;

6. Advice as how best to safeguard the family from exposure in times of epidemic, or when exposed to a poison hazard that might be communicated by clothing or dust; or when a disease such as tuberculosis has been contracted which might be communicated to the home.

7. Advisory service when called upon to the family, especially maternity advice to the pregnant mother.

VALUE OF CLINICS TO THE COMMUNITY

In addition to the foregoing, the community would have a right to the following:

1. Well kept records of all physical examinations of cases of occupational diseases found, successful treatments applied and like data; the story of which, when told, would help to educate the public as to the nature and extent of such diseases, and more especially would they educate the general practitioner

to serve more efficiently his industrial patients;

2. An interpretation of such records so as to reveal the hazardous processes in industry and to determine the engineering improvements necessary to institute and maintain safe working conditions as well as the program for personal and plant hygiene which should be prepared and followed;

3. Through the physical examinations and by the recognition and treatment of early symptoms of occupational and other diseases to protect the worker from more serious illness with its attendant economic loss; and also through the reduction of absenteeism and turnover to save losses now recuperated either out of wages or out of increased prices for the finished product;

4. Through more scientific knowledge of industrial diseases and their causes and practical experience as to the efficiency of corrective programs to exercise a control over legislation relating thereto, both in the interest of the manufacturer and worker and for the protection of the public; for the fact must not be lost sight of that the cripples of industry are often the charity wards of society and are an unnecessary burden upon public and private philanthropic funds.

5. Service as a clinical laboratory in industrial hygiene for the local Health Board and to advise such local Board in all matters pertaining to industrial hygiene and medicine in the community;

6. The promotion of a sane educational program in the schools, public gatherings and newspapers, in the interest of safe and sanitary work places and the compliance by both employers and employees with the requirements of industrial hygiene.

WHERE CLINICS HAVE BEEN ESTABLISHED

Not many industrial clinics have been established. Some dispensaries are interested in certain phases of industrial work, notably those established to fight tuberculosis; others of a general character attached to hospitals functioning in industrial neighborhoods have the opportunity, but do not specialize in industrial diseases. Rarely, indeed, are they sufficiently conversant with neighborhood industries to serve them more than in a casual way.

The most thoroughly organized and equipped clinic, with the most comprehensive program so far reported is located in Milan, Italy. Prof. Devoto[1] defines its functions as primarily "for consultations with, and examinations of industrial workers, for treatment of patients, for experiment and research, and for a popular propaganda of occupational hygiene."

The physical equipment as well as the program of Dr. Devoto's clinic is beyond the reach of the average industrial city. The buildings house "five dispensary rooms, eight infirmaries, and six isolating rooms, three physiopathological laboratories and one room for experimental fatigue, three bacteriological, five chemical, five pathological, histological and micrscopical laboratories, three rœntgenological laboratories, and anatomic museum and an autopsy room" as well as several other special rooms for research and teaching. Dr. Devoto defined his ambition for his institution when he characterizes it as "a clinic for the pathology of work," which is "more than a mere infirmary for persons affected by saturnism or mercurialism and other complex forms of occupational diseases."

Less elaborate, but unique, is the clinic of the Joint Board of Sanitary Control, New York City. Dr. George M. Price[1] describes this clinic as operating for the benefit of the Garment Workers' Union. One requisite for admission to this Union is to pass successfully a physical examination in the clinic. Dr. Price states that the Joint Board of Sanitary Control was organized in 1910 to supervise the sanitation and safety of the working conditions of 85,000 workers in 2,500 shops. In an effort to promote the health of these workers, a medical clinic with a diagnostic and therapeutic program was instituted in 1912. Between this date and 1918 inclusively the output of the clinic was 27,640 physical examinations.

In addition to this clinic the Joint Board has opened a Dental Clinic because it was found that "50 per cent of the workers examined suffered from diseased and decayed teeth" for the treatment and care of which they could

1. *Modern Medicine*, George M. Price, Vol. I, No. 1, p. 49

1. *Diseases of Occupation and Vocational Hygiene*, Kober and Hanson, p. 765.

only defective work at heavy costs from neighboring dentists.

Still another form of clinic has been evolved, rather than created, at the Massachusetts General Hospital out-patient department. Dr. Edsall[1] states that in 1913, medical students working in the male clinic of the out-patient's department were given occupational cards calling for a brief job analysis of present work of the patient, past work history, exposure to hazardous processes, poisonous material handled, and present physical defects for which treatment was sought. Careful follow-up work by a trained social worker was provided. Thus an ordinary hospital clinic, by the introduction of a special card, the direction of the attention of the examining staff to the occupational research possibilities and a little follow-up with its attendant analysis of records, became an efficient, though small, industrial clinic. Within the first eighteen months, out of 624 patients examined and recorded, 1,207 exposures were noted. Out of this has grown the industrial clinic of the Hospital, temporarily discontinued during the war period, but now in active operation again.

Other industrial clinics have been opened in connection with the University of Pennsylvania, and the Rush Medical College. There has been no concerted nor general movement, however, to open clinics in the various industrial centers throughout the country. In some cities such as Jersey City, Newark, Syracuse and Perth Amboy, movements in this direction are under way.

ORGANIZATION OF CLINICS

It should not be difficult to organize an industrial clinic. Necessarily the right location is in the industrial city and the right place there is in the industrial neighborhood where workingmen live. In large cities, such as New York, Chicago, or Philadelphia, or even where they are of lesser size but have large industrial populations, clinics should be opened in each residential area housing large numbers of wage earners. They may be fostered by the local health board, or in the event this is not feasible for political or other reasons, they may be operated by the Bureau of Hygiene of the State Labor Department or of the State Health Department. They may well be organized in connection with a medical school, utilizing, for much of the preliminary work of physical examinations and statistical interpretation, the fourth-year students who would thus get excellent field training to supplement their theoretical work. Where labor unions are strong, as in the garment trades in New York City, the unions may well sponsor a clinic, utilizing it for the benefit of their own members. Groups of small manufacturing establishments whose workers are not otherwise served would find it to their interest to organize and direct such a service.

PERSONNEL

Each clinic needs a full time medical director with such medical nursing, sociological and clerical assistants, as the work calls for. Moreover, practicing physicians in the city, and eye, ear, nose, throat, lungs and heart specialists, should be attached to the clinic in a consulting capacity. Governed by the need for their services, office hours at stated periods should be kept. If the city is fortunate enough to possess a diagnostician in occupational poisoning, his services should be retained. Where there is none the medical director himself should specialize in this field, or the volume of work not permitting, he should train up a specialist, who, in time, would be able to recognize and advise with authority upon the more prominent occupational diseases in the industries in the city.

1. *Monthly Rev.*, Bur. of Labor Statistics, Dec., 1917, p. 170.

ADVISORY COUNCIL

Wherever the organization of an occupational clinic is decided upon, whether by a city, state or other agency, there should be a representative board or council selected to have general advisory supervision of the plans proposed and the determination of the policies adopted. Such a body should not only have representative physicians serving upon it, but also representatives from industry, and from employees of the industrial community affected. It should also have engineers familiar with mechanical safety devices, qualified to make recommendations to reduce the number and severity of the hazards, and social workers competent to interpret the economic and social relations and consequences resulting from such hazards. Lest such council become a mere figurehead, stated meetings are necessary and definite advisory duties assigned its members. A working program should be followed which would assure the intelligent supervision and popular support of the clinic, the checking of any abuse of its privileges, and the massing of data capable of being interpreted and worthy of interpretation. Such advisory council might well become a medium for the intelligent interpretation of statutes relating to industrial hygiene and sanitation, for checking unwise legislation and recommending, in coöperation with other clinics in other cities and states, those statutory changes that might be necessary to make such laws in all states approximately uniform.

EQUIPMENT

The equipment needed for an industrial clinic will depend wholly upon its program. If opened in a hospital, the question of equipment simplifies itself. If in a new neighborhood and the program is largely one of physical examinations and advice, without treatment of any kind and without dispensary aid, the quarters needed would call for a cheery waiting room, an assistant's room with office equipment where a social worker or nurse may interview the patient and secure preliminary information. Opening from such a room should be small dressing rooms leading to the shower and toilet fixtures, beyond which, or adjacent to which, should be the examining room. The equipment of the examining room may be elaborate, if program and funds warrant. Lacking funds, it may be limited to such instruments and facilities as clinical scales, examining table, stethescope, dynamometer, clinical thermometer, head mirror, tallquist's scale, sphygmometer, nasal, oral and throat speculæ, Snellen test cards and worsteds for color tests, and a tape measure. Where more refined procedures are needed, as in differential blood counts or other examinations, the patient should be referred to the laboratory of a neighboring hospital. As the program of the clinic develops so also would the equipment. The important point is that the preliminary outlay need not be expensive. It is quite probable that the need for additional equipment will be felt ultimately as workers appear who need special examinations for injuries to eyes, ears, nose, throat or other organs that call for intensive work at the hands of specialists.

FINANCING THE CLINIC

Wherever organized, clinics should be adequately financed either by appropriations from public funds, or be jointly and adequately subsidized by industrial plants, labor unions and public spirited citizens. Such funds should cover the initial expense of rooms and equipment with a sufficient additional amount to meet overhead, including the publicity necessary to acquaint the community to be served with the plans and purposes of the clinic.

It is neither wise nor necessary that the clinic should be run on the basis of charity. Self respecting wage earners would not wish it to be so run; free service will defeat the purposes for

hich it is organized. Moreover free rvice would subject it to the growing stility among practitioners now con- ntrating on the abuses that have grown p with free clinics and free dispensaries. he charges, though, cannot be based n the fees which specialists now re- eive for their services. A nominal fee, determined by the advisory council, and ufficient to cover operation costs, can e charged. Some clinics collect small fees of 25 and 50 cents, others one dol- ar. A fair fee would be determined by the standard wage of the population served. Circumstances will determine whether the clinic should expand so as to function also as a dispensary. Even where the clinic is run by a union, though the periodic physical examinations of members and the special medical examination of all reported sick might, with reason, be free, yet when the dentist, oculist, ear, nose, and throat specialists are called in, fees should be charged. In the clinic of the Joint Board of Sanitary Control previously referred to, the rates vary from $1.00 for examination and advice to $2.50 when a full hour's service in dental work is rendered. Such charges brought this particular clinic $12,577.00 from 7,465 patients, or within $292 of the entire cost of the department.

RECORDS

Because so much of the value of the clinic depends upon the use to which the information gathered by physical examinations can be put, it is of the greatest importance that complete and intelligent records should be gathered. The records of ailments in any industry may indicate the hazards in that industry. Thus the fundamental physical examination schedules should be carefully determined before the clinic opens its doors. When these schedules are in use by a number of clinics, there is a chance for an early study of an occupation or even an industry. With supplementary sociological and industrial data gathered by the industrial nurse or social worker, an interpretation of the social costs from occupational hazards may be made.

Some progress has been made in standardizing physical examination forms by the Office of Industrial Hygiene and Sanitation, U. S. Public Health Service. Two of these forms are appended to this article, Chart II is typical of the supplementary physical examination outline to be used when workers from a specific industry are being examined. Samples of the forms used when workers give a history of exposure to specific poisons are available on request to the office of Industrial Hygiene and Sanitation, U. S. P. H. S., Washington, D. C. The use of these forms is recommended for all industrial clinics. When changes are contemplated to suit local conditions they should be of a nature to amplify rather than to contract the information called for. Should local industrial areas find other occupational poisonings predominating, special forms for supplementary physical examination will be prepared by the Service upon request, duplicates of which will be forwarded to all other clinics coöperating in the collection of data.

In order to make an early interpretation of the data collected by such physical examinations, it is recommended that a progress sheet be maintained as the examinations proceed, whereon information may be visualized which will give an approximate idea of existent occupational disabilities. Such a progress sheet may be as concise or as elaborate as the clerical staff will permit. If indications point to the presence of unexpected hazards, special efforts should be made to direct additional workers from such occupations to the clinic that the suspected hazards may be verified. It is advisable in such cases to direct the social worker to obtain social data pertaining to family income and home conditions, that these possible factors may properly be evaluated and if circum-

CHART I

PHYSICAL EXAMINATION

Case No.....

City .....Plant .....
Name .....Address .....
Age.....Apparent age.....M. F.....M. S. W. D.....
Birthplace .....Race .....
Father's nationality .....Birthplace .....
Father—living, dead.....Cause .....
Mother's nationality .....Birthplace .....
Cause .....
Previous occupations and time in each.....

Present occupation .....
Where now employed.....How long .....
Character of work.....
Hours of work.....Time.....Piece.....

Hazards—Dust, heat cold, acids, fumes, gases, poisons. Others.....
Exact description .....

Length and extent of exposure.....

Date .....
Shop No.....
Past history and habits.....

Present complaints .....

General Appearance .....
Wt.....Recent change.....Height .....
Skin—Smooth, rough, clear, color.....
Eruptions .....
Scars and ulcers.....
Evidence of anemia.....
Eyes—React to light ..... Accommodation ....
Lids.....Inflamed .....Ptosis .....
Reaction .....Vision—R.....L. .....
Ears—Discharge .....Hearing—R.....L. .....
Nose—Obstruction .....Disease .....
Mouth—Open .....Ulcers .....
Breath.....Other conditions.....
Gums—Color .....Disease .....
Teeth.....No. out.....No. decayed.....Malocclusion .....
Tongue .....
Tonsils—Large, cryptic, absent.....Inflamed .....
Throat—Inflamed.....Mucous patches .....

Glands enlarged .....

Deformities .....
Congenital .....Acquired .....
Spine .....
Flatfoot .....
Chest—Barrel .....Flat.....Pigeon .....
Lungs.....
Heart .....
Hypertrophy .....Murmurs .....
Pulse .....Temperature .....
Blood pressure—Sys.....Dias. .....
Arteries .....Sclerosis .....
Veins .....Varicose .....
Abdomen—Large, flat, tender, tympanitic.....
Hernia .....Wear truss .....
Spleen .....Large .....Tender .....
Liver .....Large .....Tender .....
Genito-Urinary Organs .....
Varicocele .....Hydrocele .....
Urethral discharge .....Gonorrhea .....
Other .....
Chancre .....
Chancroids .....
Menstruation .....Dysmenorrhea .....
Rectum .....Hemmorrhoids .....Ulcers .....

Nervous System .....
Defective mentality .....
Station .....
Gait .....
Tremor—Tongue, eyelids, fingers.....
Paralysis .....
Epilepsy .....
Reflexes .....
Dynamometer test.....R.....L.....
Diagnosis .....

Remarks .....

Signed .....M. D.

If worker handles, or is exposed to an industrial poison, fill out the proper appendix card.
Form B-1, July, 1919, U. S. Public Health Service, Office of Industrial Hygiene and Sanitation.

nces warrant, eliminated from the t of causative agencies for the disabil- es discerned.

BRINGING WORKERS TO THE CLINIC

The patronage of the clinic by indus- ial workers and their families is rgely a matter of how the clinic is perated. Where it is independent of ny institution or organization, the cli- ntele or personnel of which furnishes the patrons, the problem is largely one of acquainting the workers with its pur- pose and location. This may be done by lectures to shop groups at the noon hour, or by talks to unions or other organiza- tions largely made up of wage earners. When such talks are given, cards de- scribing the clinic should be distributed, each containing a note stating that the bearer upon presentation of the card at the clinic is entitled to a physical exam- ination and medical advice as to his con- dition and counsel as to the treatment of any ailments discovered. Patronage of the clinic may be facilitated by securing the coöperation of the em- ployers and their plant subordinates, or, it may be helped by enlisting the assistance of settlements, associa- tions, and the churches functioning among such workers or newspapers read by them. It is wise to placard shop bulletin boards and like strategic places with posters, giving the name and loca- tion of the clinic, the purposes it is to serve, and the fees, if any, that are to be charged. When special efforts are made to attract men and women, these should be directed to groups of like in- terests, i. e., to all foundry workers one week, all machinists another, all painters a third, and so on. Or the groups may be appealed to by industries or plants. The best results from a scientific point of view follow the appeal to occupa- tional groups, for the data thus gathered lends itself more readily to coördination and interpretation.

JOB ANALYSIS

Close coöperation between the clinic and industrial plants, with a careful grading of workers according to their physical fitness, will permit the clinic to do constructive advisory service that will eliminate the more patent defects in the workers classified in the lower grades and thereby help to promote them from the lower to higher grades with the corresponding transfer in their employment; a mutual gain thus accru- ing to employee and employer. In order to accomplish this well planned and con- cise analyses must be furnished the clinic by local industries. Such job analyses should show:

a. The nature and scope of the work to be done;

b. The educational training and experience the worker should have in order to do the work;

c. The mental and physical requirement to be possessed by the worker assigned to the job;

d. The hazards associated with the work and the extent to which these may be re- duced by prophylactic or other measures un- der control of the workers.

Such a job analysis might well follow one adopted by the Office of Industrial Hygiene and Sanitation, U. S. Public Health Service, in some researches made into occupational health hazards.

CONCLUSION

The purpose of the occupational clinic will be defeated unless discretion is shown in its organization and manage- ment. It must be a neutral ground where dominance is neither with the employer nor the employee. Both will have to pull together, with the records of the physical examinations treated confidentially except in special cases where job analyses are furnished, and workers are recommended as fit for special jobs. The community should benefit through the preservation of the health of its citizens; industry should benefit through the increased regularity and efficiency of the wage earner, and the wage earners should benefit through the knowledge furnished them about

FOUNDRY WORKERS

CHART II

PHYSICAL EXAMINATION

Case No.....

Supplemental physical examination and history for workers in FOUNDRIES

City .....Plant .....Date .....

Name .....Address .....Shop No.....

Job Description .....

.....

.....

.....

Present illness (Develop history in detail and chronologically):— .....

.....

.....

.....

.....

.....

Check the following symptoms if present or history, if same obtained:.....

Heat stroke	Neuritis	Dizziness	Chronic cough	Diarrhea
Heat exhaustion	Striker's arthritis	Headache	Frequent colds	Constipation
Excessive fatigue		Chills	Nausea	Intestinal colic
Rheumatism	Neuralgia	Skin eruption	Vomiting	Hemorrhoids
Lumbago	Parasthesia	Jaundice	Gastric disturbances	
Sciatica	Insomnia	Bronchitis		

Supplementary physical examination. Note particularly evidences of the following:

Pallor	Conjunctivitis	Cardiac hypertrophy	"Sunburn" of arms and face	Genu Valgum
Emaciation	Cataract	Cardiac murmur	Spinal curvature	
	Pyorrhea alveolaris			
	Impaired hearing			

Diagnosis ..... Signed.....M. D.

.....

Form B-8, July, 1919, U. S. Public Health Service, Office of Industrial Hygiene and Sanitation.

their health and the advice given as to how to treat complaints that may be found.

Definite detailed steps for the organization of an occupational clinic are not set forth here for the reason that clinics should be adapted to their environment and should be established only after a study of the industries, nationalities, and resources of the community to be so served both as to financial support and as to the available specialists who may be secured to assist. Wherever an occupational clinic is contemplated, the services of the Office of Industrial Hygiene and Sanitation, of the U. S. Public Health Service are available for consultation and advice, and possibly assistance in the preliminary research work necessary to determine the program to be followed.

Finally, too much emphasis cannot be laid on the importance to the nation of industrial clinics well coördinated. Such coördination cannot well take place unless standardized forms for physical examinations are used. These the Office of Industrial Hygiene and Sanitation, U. S. P. H. S., is now prepared to recommend.

When clinics have been functioning long enough to have accumulated a sufficient number of physical examinations for an occupation or industry to justify an interpretation of its progress chart, and it thereby discovers what appears to be a specially hazardous process, such information, if supplied to the U. S. Public Health Service will enable the Office of Industrial Hygiene and Sanitation to circularize among all other clinics for comparative data; and if circumstances warrant it, to direct special researches into the nature and extent of the alleged hazard together with the diagnostic features of the poison and the therapeutic and prophylactic measures to be adopted to eliminate it, or at least to minimize its effects.

WORLD-WIDE WORK OF INTERNATIONAL HEALTH BOARD

FIJI ISLANDS

Anti-hookworm staff in the Fiji Islands. The medical representative of the International Health Board is seated in the center, and about him are four Fijians—note their luxuriant heads of hair. At the left end are Hindu nurses and at the right a Hindu caretaker. In all countries the doctor recruits his staff from among the residents.

BIOLOGY OF THE PFEIFFER BACILLUS

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Read Before Laboratory Section, American Public Health Association, October 28, 1919.

THE observations here reported deal with three cultural reactions of the Pfeiffer bacillus: (a) Indol Production; (b) Reduction of Nitrate to Nitrite; (c) Growth in Litmus Milk.

(a) *Indol Production.* I have recorded earlier* the fact that 10 out of 13 strains of Pfeiffer bacilli tested produced indol in blood broth. Twelve additional strains have since been subjected to the same test. These strains have been isolated from various diseased conditions of the human respiratory tract, four from influenza cases during the pandemic of 1918 and the rest from "colds" and "sore throats" during the past few months. Eight of these have produced indol, four, including two epidemic strains, have remained consistently negative. The total for the whole 25 cultures is therefore 18 giving positive indol production, 7 negative.

(b) *Reduction of Nitrate to Nitrite.* The presence of this reaction does not seem to have been previously determined in cultures of Pfeiffer bacilli. On finding in the fall of 1918 that cultures of the Pfeiffer bacillus in blood broth grew well and in some instances produced indol abundantly, I tested in the same medium the power of the strains then available to reduce nitrate to nitrite and found that all possessed the power of reduction. The medium used is blood broth containing 0.2 per cent potassium nitrate.

All of the 25 strains examined proved to have the power of reducing nitrate to nitrite in this medium. Occasionally a strain has failed to give the initial reaction, but on reinoculating a fresh tube of the medium abundant nitrite formation has occurred, so that an occasional absence of the reaction may well be attributed to a failure to develop. The same failure of an inoculation to "take" has also been observed at times in indol-producing strains so that several negative tests have been considered necessary to establish the character of a strain. Nitrate reduction, however, has occurred under suitable conditions in all the strains of Pfeiffer bacilli thus far studied.

(c) *Litmus milk.* In a medium composed of equal parts of heated blood broth and litmus milk the majority of the strains examined turn the medium slightly alkaline. A few strains give irregular or doubtful reactions and at times seem to produce a small amount of acid.

These cultural characteristics separate the group of Pfeiffer bacilli very definitely from *B. pertussis* (4 strains) and *B. bronchisepticus* (3 strains). No one of the strains of *B. pertussis* and *B. bronchisepticus* produce indol, none of them reduce nitrate to nitrite, and all of them produce much larger amounts of alkali in litmus and brom-cresol milk. The development of alkalinity in cultures of *B. pertussis* is considerably later than in cultures of *B. bronchisepticus*, but far exceeds that observed in any cultures of the Pfeiffer bacillus.

*Jour. A. M. A., 1919, 72, pp.1542 and 1543.

HEALTH QUOTATIONS

COMPILED BY JAMES A. TOBEY,
Washington, D. C.

"A short saying oft contains much wisdom."—Sophocles.

Although sanitary science owes its greatest development to the achievements of modern scientists, health is a subject which has concerned the great minds of the world from the dawn of civilization. It has concerned not only the medical and its allied professions, but has also inspired noted authors and statesmen, some of whose writings have had an important influence on the public conception of health. Modern literature on public health is not always adorned with culture and modern writers on this engrossing subject could frequently enrich their productions with quotations from the writings of the past.

In the following pages are presented some selected quotations on health. While many of the citations may be found scattered in the various standard collections of quotations, this is believed the most complete compilation of quotations applicable to public health. It is hoped that it may prove of value to authors and speakers and for bulletins and pamphlets as well as a source of inspiration to the profession generally.

HEALTH

Refuse to be ill.—Lytton.

Love and health to all.—Shakespeare, Macbeth.

Have mind upon your health.—Shakespeare, Julius Caesar.

The first wealth is health.—Emerson.

Why should'st thou die before thy time?—Eccl. 7:17.

The tongue of the wise is health.—Prov. XII; 18.

Life is the gift of God and is divine.—Longfellow.

It is not life to live but to be well.—Martial.

He who has not health has nothing.—Rousseau.

Health and cheerfulness make beauty.—Cervantes.

It is not how long but how well we live.—Delille.

Gold that buys health can never be ill spent.—John Webster.

Oh blessed health. Thou art above all gold and treasure.—Sterne.

He who has health has hope, and he who has hope has everything.—Arabian Proverb.

There is no kind of an achievement equal to perfect health.—Roosevelt.

Happiness lies first of all in health.—George William Curtis.

Let health my nerves and finer fibres brace.—James Thomson.

The healthy know not of their health, but only the sick.—Carlyle.

Give me health and a day and I will make the pomp of emperors ridiculous.—Emerson.

Good health and good sense are two of life's greatest blessings.—Publius Syrius.

Health lies in labor and there is no royal road to it except through toil.—Wendell Phillips.

Health is certainly more valuable than money; because it is by health that money is procured.—Johnson.

Health is the greatest of all possessions—a hale cobbler is a better man than a sick king.—Bickerstaff.

Beloved, I pray that in all things thou mayest prosper and be in health, even as thy soul prospereth.—III John 2.

In health there is a liberty. Health is the first of all liberties, and happiness gives us the energy which is the basis of health.—Amiel.

Health is the second blessing that we mortals are capable of—a blessing that money cannot buy.—Izaak Walton.

Health is the essential factor in pro-

Single copies of the reprint of this article may be obtained of the JOURNAL at 10 cents each; in quantities of 10 or more, at 5 cents each.

ductiveness, prosperity and happiness, and hence in the advancement of civilization.—Sir Frederick Treves.

The Public Health is the foundation upon which reposes the happiness of the people and the strength of the nation. The care of the public health is the first duty of a statesman.—Disraeli.

And as ye go, preach, saying, The kingdom of heaven is at hand. Heal the sick, raise the dead, cleanse the lepers, cast out demons; freely ye received, freely give—Matt. 10: 7, 8.

Our national health is physically our greatest asset. To prevent any possible deterioration of the American stock should be a national ambition.—Roosevelt.

I solemnly warn my fellow countrymen that you cannot maintain an A-1 empire with a C-3 population. You cannot bring up healthy people in unhealthy homes.—Lloyd George.

Health is the vital principle of bliss,
And exercise, of health.—James Thomson.
Rich, from the very want of wealth,
In heaven's best treasures, peace and health.—Thomas Gray.
Reason's whole pleasure, all the joys of sense,
Lie in three words, health, peace and competence.—Alexander Pope.

My mind to me an empire is,
While grace affordeth health.—Robert Southwell.
You hoard not health for your own private use,
But on the public spend the rich produce.—Dryden.
And he that will this health deny
Down among the dead men let him lie.—Dyer.

Nor love, nor honor, wealth nor power,
Can give the heart of cheerful hour
When health is lost. Be timely wise;
With health all taste of pleasure flies.
—Gay.

CHILD WELFARE

Every child has the right to be well born.—John Ruskin.

God could not be everywhere, therefore he made mothers.—Jewish proverb.

What right have we to the word "civilized" till we give mothers and children a proper chance?—John Galsworthy.

The childhood shows the man
As morning shows the day.—Milton.

Do not try to produce an ideal child; it would find no fitness in this world.—Robert Spencer.

Give me intelligent motherhood and good prenatal conditions and I have no doubt of the future of this or any other nation.—Rt. Hon. John Burns.

The death of a child occasions a passion of grief and frantic tears, such as your end, brother reader, will never inspire.—Thackeray.

There should be no more thence an infant of days, nor an old man that hath not filled his days; for the child shall die an hundred years old.—Isaiah LXV: 20.

He who helps a child helps humanity with a distinctness, with an immediateness, which no other help given to human creatures in any stage of their human life can give.—Phillips Brooks.

PUBLIC SERVICE

The noblest motive is the public good —Virgil.

The public safety is the supreme law —Bacon.

Seek the welfare of the human race. —Tarascon.

Answer a fool according to his folly.—Proverbs.

Lean, hungry, savage anti-everythings. —Holmes.

The vocation of every man and woman is to serve other people.—Tolstoi.

The health of the people is of supreme importance.—Chester A. Arthur.

There is something better than making a living—making a life.—Lincoln.

The Public is an old woman. Let her maunder and mumble.—Carlyle.

It is characteristic of Science and Progress that they continually open new fields to our vision.—Pasteur.

Physiological experiment on animals is justifiable for real investigation, but not for mere damnable and detestable curiosity.—Darwin.

When a man assumes a public trust, he should consider himself as public property.—Thomas Jefferson.

To raise the level of national health is one of the surest ways of raising the level of national happiness.—William E. H. Lecky.

He who serves the public is a poor animal, he worries himself to death, and no one thanks him for it.—Goethe.

The fate of a nation has often depended on the good or bad digestion of a prime minister.—Voltaire.

The whole sum of life is service—service to others and not to self. No man has come to greatness who has not felt in some degree that his life belongs to the race.—Phillips Brooks.

Men who are occupied in the restoration of health to other men, by joint exertion of skill and humanity are above all, the great of the earth. They even partake of the Divinity, since to preserve and renew is almost as noble as to create.—Voltaire.

DISEASE

Diseases crucify the soul of man.—Burton.

Ring out old shapes of foul disease.—Tennyson.

This strange disease of modern life.—Arnold.

For a desperate disease a desperate cure.—Montaigne.

I find the medicine worse than the malady.—Fletcher.

Disease is a retribution of outraged nature.—Hosea Ballou.

Disease is a crime, a man has no moral right to be sick.—C. G. Finney.

There are some remedies worse than the disease.—Publius Syrius.

Did you ever have the measels, and if so, how many?—Artemus Ward.

PHYSICIANS

Physician, heal thyself.—Luke 4:23.

Time is the great physician.—Disraeli.

Physicians are many in title, but few in reality.—Hippocrates.

An ignorant doctor is the aide-de-camp of death.—Avicenna.

Keep the physician from the door as long as you can.—Flavius Volens.

They that are whole need not a physician, but they that are sick.—Luke 5:31.

No man can be at once physicist, biochemist, pathologist, practitioner and sanitarian.—Sir Clifford Albutt.

It is not much trouble to doctor sick folks; but to doctor healthy ones is troublesome.—H. W. Shaw.

He who cures disease may be the skilfullest, but he that prevents it is the safest physician.—T. Fuller.

Ignorance is not so damnable as humbug; but when it prescribes pills it may happen to do more harm.—George Eliot.

Physicians and politicians resemble one another in this respect that some defend the constitution and others destroy it.—Acton.

The physician is the flower (such as it is) of our civilization; and when that stage of man is done with, and only remembered to be marvelled at in history, he will be thought to have shared as little as any in the defects of the period, and most notably exhibited the virtues of the race.—Robert Louis Stevenson.

SANITATION

A very ancient and fish like smell.—Shakespeare.

Every state should provide pure water for its people.—Aristotle.

The sun, too, shines into cesspools and is not polluted.—Diogenes.

Water, air and cleanliness are the chief articles of my pharmacopeia.—Napoleon.

Give me the splendid silent sun, with all his beams full dazzling.—Walt Whitman.

Sanitary, civic and moral decadence was the worm at the root of every dis-

credited and submerged civilization of the past.—Burkart.

He who overlooks a healthy spot for the site of his house is mad and ought to be handed over to the care of his relations and friends.—Varro.

As one who long in populous city pent,
Where houses thick and sewers annoy the air.—John Milton.

PERSONAL HYGIENE

Know thyself.—Socrates.

Cleanliness is indeed next to Godliness.—Wesley.

Pain is no evil, unless it conquer us.—Kingsley.

Throw physic to the dogs; I'll none of it.—Shakespeare, Macbeth.

Cleanliness may be defined to be the emblem of purity of mind.—Addison.

Cleanness of body was ever deemed to proceed from a due reverence of God.—Bacon.

Better use medicines at the outset than at the last moment.—Publius Syrius.

Martin, if dirt was trumps, what hands you would hold.—Charles Lamb.

Lord, I wonder what fool it was that first invented kissing.—Swift.

It is exercise alone that supports the spirits, and keeps the mind in vigor.—Cicero.

The weaker the body, the more it commands; the stronger it is, the more it obeys.—Rousseau.

If a man defile the temple of God, him shall God destroy. For the temple of God is holy, which temple ye are.—1 Cor. 3:17.

Rough, vigorous pastimes are excellent things for the nation, for they promote manliness.—Roosevelt.

A man's own observation, what he finds good of and what he finds hurt of, is the best physic to preserve health.—Francis Bacon.

Early to bed and early to rise,
Makes a man healthy, wealthy and wise.—Franklin.

Bid them wash their faces
And keep their teeth clean.—Shakespeare, Coriolanus.

Make the house where gods may dwell,
Beautiful, entire and clean.—Longfellow.

HEREDITY

Survival of the fittest.—Spencer.

Think of your ancestors and your posterity.—Tacitus.

In the field of destiny we reap as we have sown.—Whittier.

Before man made us citizens, great nature made us men.—James Russell Lowell.

In your children ye shall make amends for being your father's children.—Neitzsche.

Heredity is only the sun of all past environment, in other words environment is the architect of heredity.—Burbank.

□

Composite Industrial Poisons.—All who are familiar with and have occasion to refer to the list of 54 industrial poisons contained in U. S. Labor Bulletin No. 100 will be particularly interested in this review of a series of articles by Dr. Johann Mueller in which are listed numerous industries and their peculiar processes in which workmen are subjected to the influence of mixed poisons. For each industry there is stated in tabular arrangement the dangerous processes and products, the poisons used, poisonous by-products and impurities, and a final column headed "remarks." Many prominent industries are covered, such as the sulphuric acid manufacture, artificial fertilizers, india rubber, dyeing, gas industry, metal industry, tanning, tinning, porcelain, etc.—*Monthly Labor Review*, February, 1920.

TYPES OF FATIGUE

PERCY G. STILES,
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Bad habits in the nervous system often lead to "vicious circles" in mental processes. Discipline is important here. Change of scene or sanatorium life is beneficial largely in its power to get the mind out of its "ruts." Psychotherapy may effect this. Recovery from mental fatigue is less a matter of correcting metabolism than of forming desirable habits.

CHEMICAL processes of two opposing orders are conceived to be going on in living cells. Activities of the first type are constructive and dependent ultimately on the appropriation of food. The converse processes are those in which organic compounds are broken down with release of energy. Such reactions underlie the production of heat and work, and, in some measure, the phenomena of secretion and absorption. It is evident that no organism can remain constant as to its mass and potentialities save as a balance between these two is closely preserved. A temporary excess of destruction (katabolism) over renewal tends to be self-limited and the disturbance of equilibrium in this direction may be said to constitute *fatigue*.

When the processes of repair are as active as possible and the katabolic changes still counterbalance them we have a condition in which the tissue is giving its maximum performance; it expends all it can without progressively falling off in capacity. The heart is our stock illustration of an organ in which expenditure and renewal are nicely balanced; we must note, however, that it does not commonly work up to its limit of power. In a rhythmic performance like that of the heart we may say that fatigue and complete recovery alternate at very short intervals, usually of less than one second. In the breathing muscles the space of time between these extreme phases is longer, say four seconds. The heart muscle is automatic, the respiratory muscles are not so, but actuated by a center in the medulla. It seems to be a physiological principle that as we pass from simple and elementary mechanisms to those which are more plex and highly organized the ordinary alternation of active and resting periods becomes slowed. Muscles that are much used under cerebral control appear to require long intervals of relative repose. They are capable of spurts so intense as to induce long continued depression. It is a familiar fact that when the utmost efforts have been applied to pulling an ergograph definite fatigue can be demonstrated for an hour or two, even though the work was done in two or three minutes.

The mechanisms that stand in closest relation to the cerebrum seem to have evolved with some conformity to the diurnal rhythm, their metabolism may be continuously above the mean for more than half the twenty-four hours, but for a considerable part of the night it must be reduced below this average. Where the highest departments of our organization are concerned a still longer span may intervene between the trough of fatigue and the crest of recuperation. The weekly cycle and the beneficent function of the Sabbath Day are naturally sug-

gested. Possibly an annual decline and recovery may also be recognized.

If we regard fatigue as diminished capacity to respond to stimulation—an elevation of threshold—we at once realize its protective value. We see how the interposition of resistance at any point in a coördinated system prevents the wearing down of associated structures. Such a resistance appears to be developed at the junctions between nerve and muscle when they are repeatedly traversed. A corresponding obstruction in the line of flow is soon established at the junctions (synapses) between the minute units of the nervous system. The weaker links in the chain are probably most easily renewed. In the case of the synapses there seems to be a physical reason for this. They are regions of great attenuation of the conducting substance; protoplasm so organized should burn out quickly if it is the seat of active chemical decomposition. On the other hand, it should be speedily repaired because it has most extensive surface relations with the surrounding fluids.

A new picture of the intimate behavior of muscle under prolonged stimulation has been furnished by Pratt of Buffalo. It turns out that what we call a sustained contraction depends on the alternating activity of the fibers or fiber-bundles composing the muscle. The contractile elements in turn bear their part, drop out of action, and having rested, spring back to the work. They fall out because metabolic changes have caused their thresholds to rise. They resume because they have been granted time for at least partial recovery. This principle of working by shifts is favorable to endurance.

When fatigue is mentioned one thinks first of the muscles. This is natural enough. However much the mental may have entered into modern human life most people's activity is still measurable in terms of mechanical work. The muscles form about half the body and they account for perhaps four-fifths of its metabolism. When they are vigorously employed all the tissues are flooded with their waste-products so that there is a sympathetic depression of glandular function and probably of the cerebral currents which attend the intellectual processes. The massive proportions of the muscles must not be forgotten. Their metabolic influence can hinder the subtle performances of the cortical cells—in other words, bodily fatigue can unfit one for application to mental tasks—but the pursuit of mental work cannot develop great quantities of end-products that shall saturate and narcotize the muscles. A period of mental stress may make one disinclined to exercise but disinclination is not the same thing as incapacity. If there is any loss of power in such a case it is probably not represented in the muscles but at their seat of government.

Cerebral processes involve but very small masses of protoplasm and they are doubtless conducted with extreme economy. Is there a condition which can be accurately described as "mental fatigue?" We usually assume that this is a possibility. If, however, we analyze our own experiences we have to admit as a rule that what we call fatigue in connection with the steady performance of some monotonous mental operation is the tendency to seek relief in novelty—to admit new and irrelevant ideas. Unless the trial is carefully regulated there will be elements of eye-strain or postural discomfort which are neuromuscular rather than mental in nature. To be sure, we eventually need to sleep, but frequently the drowsiness comes sooner to the indolent than to the diligently working brain. Some of our ablest experimenters doubt whether we can surely demonstrate mental fatigue.

Such a doubt might encourage the belief that mental processes are definitely metaphysical and make no demand upon the material organization of the brain. This does not follow. It is much easier to conceive that even the most restricted and tedious kind of calculation employs many neurons in rotation and does not

utilize particular ones so constantly as to impair their efficiency. Analogies in this field are decidedly clumsy, but the suggestion may be ventured that the multiple equipment of the cortex is at least remotely comparable to a typewriter in which each key is necessarily idle when another has its turn. This is a rather daring transfer to the higher levels of the brain of Pratt's picture of the tetanized muscle in which certain units are continually replacing others. We have said that this mode of working prolongs the endurance of muscle. If this is true of a tissue with a high metabolism it may well nullify fatigue in gray matter where the rate of disintegration appears to be low.

When an emotional element enters into the experience the inception of fatigue may be far more obvious than in calm, straightforward mental work. Excitement has its neuromuscular accompaniments and certainly means accelerated metabolism. An important feature is the involvement of glands of internal secretion, notably the adrenal and probably the thyroid. When these have been exercised depression is to be expected. The glands may be exhausted so that for a time the delivery of their products is subnormal. The muscles, having passed through a phase of stimulation due to these same products, may enter upon a period of reaction. If we may make any suppositions about the comparative employment of cortical cell-groups in orderly mental work and in emotional turmoil we shall be inclined to assume that the latter type of activity is more massive and probably less varied in distribution from moment to moment. If it is more nearly continuous in fixed paths it must be a severer tax than the unemotional process with its frequent shifting of channels.

Consideration of what is commonly called nervous fatigue suggests two factors in the condition which should be kept in view. The first of these is the prominent part played by inhibitory complexes in nervous systems of the highest order. Maturity in the individual and civilization in the race depend on the subjection of many primitive reactions to control. A late acquisition is a relatively insecure possession and its loss as a result of many forms of wear and tear is too often observed. A nervous system which has suffered this loss is said to be fatigued though it shows many signs of over-activity. It is, in a sense, a defect of the highest organization that it does not regularly incline to rest when rest is needed. This perversity can be explained in part on the basis of lessened inhibitory powers, but there is still another element which should be given due consideration. The property referred to is that of *canalization*.

The utility of this factor in adaptation to the circumstances of life is readily recognized. In the human nervous system, far beyond any other, reactions are more easily executed as they are repeated. The principle is that of habit-formation. A path may be pursued by nerve-currents until its synapses develop resistance to the continued transmission and the common type of central fatigue is manifested. But such fatigue is transient, and, when it has passed, the net result is a greater facility for conduction in the path that has been traversed. This adaptive quality is the basis of accomplishments of every kind as well as of mannerisms and unfortunate habits. Canalization in the association systems must be at the root of scholarly attainment as surely as, at lower levels, it is the condition of manual skill. It appears that the power to form pathways of ready transmission—in short, the power to learn—and the establishment of overruling complexes of an inhibitory order are alike characteristic of higher as contrasted with lowlier nervous systems. A simple organism may have a few standard reactions which will be serviceable in all probable contingencies and no pro-

vision for their repression may be necessary. The need for inhibition comes with the development of numerous alternative reactions and is especially valuable as a check on the canalization capacity which tends to make "ruts" in the brain. This is rather an academic statement of something which William James long ago showed to be a most practical matter.

Now the picture presented by the victim of what we call nervous fatigue suggests two difficulties. One is the want of inhibitory control. This is exhibited in the familiar unrest, and, on the afferent side, as hypersensitiveness. The second feature of the trouble is canalization. The "tired" nervous system has formed bad habits. These are discovered not only in conduct but in unhappy trains of thought, incessant anxiety and self-pity. Important as it may be in such cases to build up the general health, we can see that the critical need is *discipline*. Change of scene and sanatorium life may be chiefly useful as they favor the disruption of the nerve-paths so excessively employed. Psychotherapy may effect this. This application may be in the abstract terms of some idealistic system or the very same jostling from the grooves may be accomplished with a measure of harshness. The more insight one gains into the workings of the nervous apparatus the less one is surprised by the comparatively rapid readjustments which may often be accomplished in it. Perhaps the most injurious canalizations have the character of closed circuits in which every discharge reacts upon the cells originally concerned and compels them to renew their activity. This seems to be the material concomitant in the numerous cases which yield to Freudian psychoanalysis. The circular flow of nerve-impulses needs to be diverted to some channel of expression that it may no longer return persistently to its own source.

Summary. Fatigue, in general, is depression of working capacity, owing to a katabolism running above the average for the tissue. In muscle it is just this. Muscular fatigue, because of the large masses of active protoplasm involved, can extend its influence to other systems. In narrowly localized brain activity the metabolic process cannot be large and true cerebral fatigue is probably far less common than is supposed. The use of different cell-groups in rotation may minimize the demand upon each member. The ordinary cause of diminishing mental efficiency is the desire for a change. In a reasonably trained system this is a wholesome impulse. What we call nervous fatigue, referring to a condition which is pathological and often of long duration, is due primarily to lessened inhibition. Many of its features are symptomatic of bad habits established in the ill-controlled system. Unusual outflowing currents may pervert the action of the endocrine organs. Recovery from nervous fatigue is less a matter of correcting the metabolism than of desirable habit formation.

□

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ANTHRAX PROBLEM IN MASSACHUSETTS

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Federal regulations do not prevent importation of anthrax infected material. This author suggests anthrax surveys in countries of origin of materials, quarantine of all hides, wool and hair from suspected areas, disinfection of these at places of origin and sanitary care here of wastes from hide and wool industrial establishments.

ANTHRAX is a disease primarily of animals, but easily transmitted to man by contact with animal cases, or as usually happens in Massachusetts, by contact with animal products, such as hides, hair and wool that are infected with anthrax spores.

Anthrax in animals is more or less common in certain areas of pasture land, particularly meadows, in Massachusetts, but only one case was infected by a native animal anthrax case during the period 1916-1919, inclusive.

This article is a brief study of the 126 anthrax cases reported in Massachusetts from 1916 to 1919 inclusive. The plan of investigation, inaugurated in 1916 by Dr. Charles E. Simpson, State District Health Officer, and Dr. Walter H. Brown, epidemiologist of the department, in locating the source of infected hides in the countries from which they came, has been followed and elaborated. The cases have been personally investigated by a district health officer or the epidemiologist and have shown that in spite of federal regulations anthrax-infected material is still arriving in the United States.

There are no records of anthrax in Massachusetts in the Colonial days. In the annual report of the State Board of Health for the year 1871 Arthur H. Nichols published an account of the prevalence of "charbon" in the State. In this report Dr. A. L. Pierson of Salem is quoted as having treated anthrax that had been caused by foreign hides. Dr. Silas E. Stone of Walpole reported 26 cases in Walpole from 1853-1869 that were due to hair, 24 of which worked in a hair factory. Of the 26 cases, 16 were external, malignant carbuncle cases and 6 died. The remaining 10 were internal forms, probably pneumonic, and 8 were fatal.

From 1865 to 1906 inclusive, the State Registration Reports have a record of 128 deaths from anthrax, and although there are morbidity records, the cases must have at least doubled that figure, for the fatality rate was 40 to 50 per cent.

ANTHRAX CASES IN MASSACHUSETTS

Year	Cases	Deaths	Fatality Rate Per cent
1907	1	4	
1908	5	2	40.0
1909	7	1	14.3
1910	7	2	28.6
1911	6	2	33.3
1912	11	2	18.2
1913	8	3	37.5
1914	8	1	12.5
1915	11	4	36.4
1916	31	5	16.1
1917	54	10	18.5
1918	23	7	30.4
1919	18	1	5.6
Totals	190	44	

In August, 1907, anthrax was made reportable to boards of health and the cases since that year are as in the table on the preceding page.

It is apparent that conditions brought about by the war were responsible for the great increase in cases since 1914. The abnormal increase in the demand for leather, and the shutting off of certain districts that formerly shipped hides caused dealers to go farther inland in China and South America for hides. This is particularly true of the Hankow market, which in addition furnishes the better grade of cow hides. The result was that hides from Thibet, Kansu, and other districts far in the interior of China, where it is impossible for disease conditions to be known, were shipped to Hankow and thence to the United States and other countries.

A consular certificate is demanded by the Federal Bureau of Animal Industry* certifying that hides are from a non-anthrax infected region or that the hides are disinfected before they are admitted to the United States. The consular certificate is obtained whenever possible because the process of disinfection is apt to be injurious to the hides. This certificate was given in the majority of hide shipments that apparently infected hide handlers in Massachusetts. Because of these conditions, manufacturers of leather in Massachusetts sought new methods of hide disinfection sufficient to kill the anthrax spores, and thus prevent the workers from contracting the disease.

Etiology: Anthrax is caused by a microörganism, a rod-shaped bacillus, which is easily killed, but is capable of assuming spore forms which resist all of the usual methods of disinfection. Bacilli are present only in a live or freshly killed animal and assume spore forms in the presence of oxygen at a temperature approximately 85° F.

*Joint Order No. 2, U. S. Department of Agriculture and U. S. Treasury Department.

The spore forms, because of their great power of resistance to heat, cold and acids, are the chief means for keeping anthrax epidemic in certain areas, by "seeding" the ground. The spores are apparently responsible for 125 of the 126 cases studied, for only one case was due to the patient handling an animal anthrax case.

Mode of Infection: The unbroken skin surface protects, but any abrasion, scratch or cut, offers an opportunity for dirt to be rubbed in, and if the spores are present in the dirt a case of anthrax will probably result.

It is the infected hides particularly that have proved to be the most difficult problem in eradicating human anthrax in Massachusetts.

Source of Infection: Infection is usually from anthrax spores on dried or pickled cow hides, goat skins, horsehair and wool in the external type of the disease.

Horsehair and wool, because of the spore infected dust that rises in handling them, cause the pneumonic type or "wool sorter's disease" at times.

Types of Anthrax: There is an external and an internal type of anthrax.

(1) External anthrax, the most common in Massachusetts, exhibits the skin lesion of the disease, as a papule, vesicle and carbuncle accompanied by much edema, fever and prostration, but there is practically no pain. It is the result of direct contact with anthrax spores, or, rarely in this state, with anthrax bacilli.

(2) Internal anthrax may be the intestinal form, where anthrax infected meat has been eaten, or the pneumonic or lung form (wool sorter's disease) where anthrax spores have been breathed in and the lung infected. There are no cases of the intestinal form on record in Massachusetts as far as is known. There have been a few cases of the pneumonic type. This type can be diagnosed by finding anthrax bacilli in the

sputum, but usually is not diagnosed until death and an autopsy held. During the period 1916-1919 there were 3 pneumonic cases, all of which were fatal, out of 126 cases of anthrax. Recently British investigators* have reported cases of meningitis due to the anthrax bacillus, but the diagnosis was not determined until lumbar puncture disclosed anthrax bacilli in the spinal fluid.

Method of Investigation: Practically all of the cases have been personally investigated and visits made to hospitals, factories, tanneries, hide dealers and brokers in checking up and following the thread of information leading to the country from whence the hides were shipped.

When the first case reported from a hide infection, has been a worker on the docks, the factories and health department at the place where the hides are to be shipped have been notified of the probably anthrax infected lot. In other instances shipments were separated into several lots and forwarded to various dealers. If such a lot was suspected to have been infected, information to that effect was sent to the buyers so that they would be informed and the hides disinfected before workmen had an opportunity to become infected.

Seasonal Incidence: The appearance of anthrax cases does not bear any relation to the seasons, as respiratory diseases do, but depends solely on when an anthrax infected shipment of hides, hair or wool arrives in the state and when the material is handled.

The seasonable incidence for the four-year period is summarized below:

SEASONAL INCIDENCE OF ANTHRAX IN MASSACHUSETTS 1916-1919

Month	Cases
January	2
February	7
March	15
April	11
May	17
June	17
July	6
August	5
September	13
October	14
November	10
December	9
Total	126

*Local Government Board Report, 1916, by Francis J. H. Coutts, M. D.

Most of the hides from China are sun-dried cow hides and during the rainy season in that country great difficulty is encountered in drying hides, particularly if they are required to be disinfected in the bichloride solution before shipment. Unless hides are thoroughly dried they will "sweat" in the hold of the steamer and this will seriously decrease their commercial value. Obviously then, the temptation to avoid disinfection of hides in the rainy season is great and a consular certificate will be accepted in lieu, if obtainable. Thus during the rainy season the hides from China should be particularly suspected of being infected.

The majority of cases during the year, apparently infected by China hides, received their infection from hides shipped from China during the period of March to June.

Ages: The age distribution of cases and deaths of anthrax were as follows for the years 1917-1919 inclusive:

AGE OF ANTHRAX CASES 1917-1919

Age	Cases	Deaths	Fatality Rate Per cent
10-19	6	1	16.6
20-29	26	0	0.0
30-39	17	2	11.8
40-49	21	7	33.3
50-59	11	4	36.4
60-69	5	2	40.0
Unknown	9	2	20.2
Total	95	18	18.9

From the study made, the individual who is over 40 years old has much less chance of recovering from anthrax than one under that age. The three pneumonic type cases were individuals aged 30, 35 and 47 years in this period, so it is apparent, when these cases are excluded from the above table, that the older the individual the smaller are his chances of recovery.

Means of Transmission of Disease: A study of the cases, to determine the

most common means of causing the infection, shows that cow hides, particularly dried hides, and goat skins are the chief offenders. Hides of one kind or another apparently caused 111 cases or 88 per cent. of the anthrax cases.

MATERIAL CAUSING ANTHRAX CASES

Material	Cases	Deaths	Fatality Rate Per cent
Hides	111	17	15.3
Hair	5	2	40.0
Wool	7	2	28.6
Native animal case	1	0	0.0
Unknown	2	2	100.0
Totals	126	23	18.3

It will be seen that because hides cause the external type of the disease there are fewer deaths, proportionately, than those due to hair or wool, which are more apt to be of the pneumonic and more fatal type of the disease.

Origin of Infected Material: A summary is given showing the foreign origin of material handled by the anthrax cases and apparently causing the disease. In a few cases, material from two or more countries had been handled, and such cases are given under both countries; for this reason, the totals exceed the cases under consideration.

COUNTRIES EXPORTING THE INFECTING PRODUCTS

(Number of cases handling materials)

Countries	Hides	Hair	Wool
ASIA			
China			
Hankow	68	0	0
Shanghai	2	0	0
Tientsin	1	0	0
India			
Amritza	14	0	0
Dacca	1	0	0
Angra	1	0	0
Russia			
Manchuria	0	7	0
Totals	87	7	0
SOUTH AMERICA			
Argentine	17	0	6
Brazil	3	0	0
Venezuela	1	0	0
Totals	21	0	6
NORTH AMERICA			
Mexico	0	0	1
United States	5	1	1
Totals	5	1	2
Unknown origin	8	1	1

Hair: In the cases infected by hair, the material was usually horsehair from Manchuria, which is a dirty mixed hair. The cases were workers in brush factories prior to 1917, but that year a case appeared, apparently due to a new low-priced shaving brush. There have been four cases of suspected shaving brush origin in the period under discussion. Unfortunately, all the brushes were destroyed before bacteriological studies could be instituted.

Occupations: The occupations of the cases were such, in the majority of cases, that the victims came in contact with animal products such as hides, hair, wool, or with the sludge from hide vats.

The occupations are known in 124 of the cases, as follows:

LEATHER INDUSTRY

	Cases
Beamhouse laborers	79
Tacker	1
Embosser	1
Housewife	1
Hide Broker	1
Shoe cutter	1
Shoe dealer	1
Carpenter	1
Plumbers	3
	89

BRUSH INDUSTRY

	Cases
Carders	1
Laborers	3
Foreman	1
	5

MISCELLANEOUS

	Cases
Farmer	1
Restaurant	1
Unknown	2
	4

FREIGHT HANDLERS

	Cases
Teamsters	3
Longshoremen and stevedores	10
Hide weighers	4
	17

APPARENTLY INFECTED BY SHAVING BRUSHES

	Cases
Barber	1
Soldier	1
Carpenter	1
Clerk (drug store)	1
	4

WOOL INDUSTRY	Cases
Wool sorters	5
Wool salesmen	2
	7

The leather industry claimed 89 cases or 71 per cent of the total number. All except 5 cases, classified under this heading, handled hides or leather in some manner. In addition, 3 plumbers or steam fitters and 1 carpenter were infected apparently from sludge about hide vats where they were working. A housewife digging dandelions on land where the effluent of hide vats had flowed, also became infected.

The group of freight handlers, such as longshoremen, teamsters, stevedores, dock laborers and hide weighers are next in importance and had 17 cases or 13 percent. These men unloaded hides, hair and wool from ships and shifted them about the docks. In every case it was hides which apparently infected the individual and not hair or wool.

The wool industry plays a comparatively small part at present in the state as a cause of anthrax, only 7 cases being found probably due to this cause. The cases were in wool sorters and wool salesmen.

The brush industry claimed 5 anthrax patients and, indirectly, apparently by infected shaving brushes, 4 cases more. Only one of these shaving brush cases had bacteriological diagnosis, although the other 3 cases had just purchased a new brush prior to the onset of the typical anthrax carbuncle on their faces. The material handled by three of the remaining four cases of the 126 cases studied is unknown. The remaining case was a farmer who was infected by material from an animal that died of anthrax and which he had buried. This is the only case during the four-year period due to anthrax bacilli and not to anthrax spores.

Treatment of Anthrax Cases: A patient who is operated on and has the anthrax carbuncle excised, has a smaller chance of recovering than the patient who is given rest, quiet, liquid diet, corrosive poultices and anthrax serum. In operating, the opportunity of an anthracemia is offered and there are but few cases of an anthrax patient recovering after this occurs.

The fatalities from operating are summed up in the accompanying table, which gives anthrax cases in Massachusetts which had the clinical diagnosis supported by animal inoculation with material from the lesion or by smear examination, showing "large square ended bacilli" at the laboratory.

The importance of the non-operative form of treatment in preventing fatalities is so great that the comparison between the operative and non-operative treatment is given in detail.

FATALITY RATE OF OPERATIVE AND NON-OPERATIVE ANTHRAX CASES IN MASSACHUSETTS 1916-1919

Location of Lesion	Diagnosis Confirmed by Laboratory		
	Cases	Deaths	Fatality Rate %
Operative Cases—			
Neck	4	1	25
Chin	1	1	100
Forehead	1	0	0
Ankle	0	0	0
Forearm	0	0	0
Totals	6	2	33.3
Location of Lesion	Clinical Diagnosis Only		
	Cases	Deaths	Fatality Rate %
Neck	6	2	33
Chin	1	0	0
Forehead	0	0	0
Ankle	1	0	0
Forearm	1	0	0
Totals	9	2	22.2
Location of Lesion	Diagnosis Confirmed by Laboratory		
Non-Operative Cases—			
Neck	20	6	30
Forearm	10	0	0
Cheek	9	1	11
Chin	4	0	0
Eyelid	2	0	0
Hand	1	0	0
Forehead	0	0	0
Upper leg	0	0	0
Upper arm	2	0	0
Nose	1	0	0
Ankle	1	0	0
Back	0	0	0
Unknown	0	0	0
Totals	50	7	14.0

Location of Lesion		Clinical Diagnosis Only	
Neck	15	3	20
Forearm	10	0	0
Cheek	8	1	13
Chin	2	0	0
Eyelid	0	0	0
Hand	3	0	0
Forehead	4	1	25
Upper leg	2	0	0
Upper arm	0	0	0
Nose	1	0	0
Back	1	0	0
Ankle	0	0	0
Unknown	2	1	50
Totals	48	6	12.5

Information is available for 113 cases. Of this number, 56 cases had their diagnosis confirmed by bacteriological examination of smears or animal inoculation. It is of interest to note that the fatality rate of the cases that have bacteriological diagnosis approximate the rate of cases that have had no laboratory examination made, indicating that the symptoms are so typical in most cases that clinical diagnosis is usually correct.

The most successful treatment of cases in Massachusetts has been rest in bed, liquid diet and bichloride poultices combined with anthrax serum. The first dose of the serum* is 45 cc., injected subcutaneously, repeated, if necessary, after intervals of 24 hours with injections of 25 cc. In advanced stages the serum should be administered intravenously and doses up to 100 cc. may be given.

None of the pneumonic type of cases were treated with anthrax serum, so the effects of the serum in these cases is unknown.

Public Health Aspects of Anthrax: In 1916, when the cases began to increase, the manner by which workers should be protected, particularly in industries handling hides and hair, became a problem.

There will probably be an increasing demand for leather in the future and the areas that sent out infected hides during the war will continue to ship them unless some method of control is established.

In addition to preventing cases, the Massachusetts Department of Public Health furnished anthrax serum for all anthrax cases requesting it, through the kindness of the Federal Bureau of Animay Industry which manufactures it.

Tanning processes wash off or mechanically dislodge anthrax spores rather than disinfect, but for this reason there is little danger of anthrax in workers who handle finished leather. The spores, washed off, exist in the sludge and infect persons coming in contact with this material, as plumbers and carpenters. It is the laborers, hide trimmers and beamhouse workers who face the anthrax peril. The dust produced during the handling of dry hides on ships, in warehouses, storehouses, at the factory and under like conditions is always a possible cause of anthrax pneumonia. In any industry involving raw hides, hair and wool, where there is dust, there is danger of anthrax. There are probably more cases of internal anthrax, particularly of the pneumonic type, than are realized at present. Probably the reporting of this type of case will increase in the future as it becomes the custom to examine sputum in pneumonia cases.

Every case of pneumonia in a longshoreman, wool worker, hide handler or other worker among animal products, should be considered a possible pneumonia due to the *bacillus anthracis*, and diagnosis determined by sputum examination rather than later by autopsy.

Method of Importation of Hides: Federal regulations* permit the entrance of hides and skins without disinfection when accompanied by a United States consular certificate, stating that anthrax is not prevalent and that neither foot and mouth disease nor rinderpest exist in the locality in which the hides or skins originated. One of the chief troubles

*This treatment is that advised by the Federal Bureau of Animal Industry when using the serum furnished by that bureau.

*Joint Order No. 2, U. S. Treasury Department and Department of Agriculture, January 1, 1918.

in importing hides is this consular certificate, for obviously in a large country as China, where hides come into the Hankow market from areas thousands of miles away drained by the Yangste River, it is an impossibility for an official to be informed correctly regarding the prevalence of disease. The fact that the hides come from myriads of small farms and are collected by local hide collectors and passed on, instead of originating in a central abattoir, makes the certification of hides an impossibility.

Protection at Factories: Workers in leather tanneries, hair and wool factories can be protected by furnishing rubber gloves, rubber aprons, dust removing appliances on carding machines and instant treatment when an anthrax pustule appears, but why wait for the "fire"? Why not prevent at the source. All of these methods have been tried and have been found wanting—cases still occur.

It would seem far better to disinfect hides as near their source of origin as possible, to minimize the number of contacts and anthrax cases. The disinfection of hides after the workers have been infected occurs far too often. The anthrax problem is a national affair and not a state task. All disinfection should be carried out on animal products prior to shipping or on their arrival at a port in the United States and not at leather tanneries and hair factories, as is the case at present.

Preventive Methods: There have been many precautions taken during recent years by the different leather, wool and hair factories to prevent anthrax infection among their employees. These are, briefly:

(1) Issuing of rubber aprons, rubber gloves and cotton gloves to employees handling hides.

(2) Installation of dust-removing appliances, as on carding machines.

(3) Education of employees by lectures and pamphlets on the dangers, and requiring them to wash with hot water and soap before leaving the factory.

(4) Medical examination of injuries and disease at factories.

(5) Hospitalization of anthrax cases.

(6) Disinfection by steam of all hair handled in the factory where cases have occurred.

(7) Disinfection of hides on their arrival at the factory. This provision is required, under certain conditions, by the United States Department of Agriculture, Bureau of Animal Industry, and, in a few instances, carried out voluntarily by the factories.

(8) Disinfection of walls and floors before sweeping a building used for storing hides, hair or wool.

Disinfection of Animal Products: The experience in the practical disinfection of animal products in Massachusetts shows that steam disinfection is practicable for hair but not for wool or hides. The wool fibre and hides are seriously damaged by the action of the steam. The most successful disinfection of hides is by Professor Schattenfroh's method or slight modifications of it.

Disinfection of Hair: In carrying out disinfection of hair for anthrax spores, certain conditions are necessary for successful disinfection.

The hair must be loose, the bales opened and all parts of the material exposed to the action of wet steam. A temperature of 212° F. should be maintained for 15 minutes after all parts of the hair have reached that temperature.

A Local Government Board Report (New Series, No. 112) states "that for steam disinfection to be successful the cases and bales should be opened, the bundles removed, and most of the strings cut, unless the temperature inside the steam disinfection apparatus is maintained at 230° F. for half an hour."

The Federal Bureau of Animal Industry recommends* that hair be disinfected by proper exposure to a tem-

*Joint Order No. 2, United States Treasury Department and Department of Agriculture, January 1, 1918.

perature of "not less than 200° F. for at least 15 minutes, or in such manner as may be directed by the Chief of the Bureau of Animal Industry."

Disinfection of Wool: The disinfection of wool has not been studied as much in Massachusetts as that of hides and hair, because there have been few cases of anthrax among wool handlers. In England, however, the wool question has been thoroughly investigated and a practical method of disinfection of wool for anthrax has been found and, according to Dr. T. M. Legge, is in use at the present time.

This method of disinfection of wool is described fully in the report of the Departmental Committee appointed to inquire as to the precautions for the preventing of the danger of infection by anthrax in the manipulation of wool, goat hair, and camel hair (Vol. II, cd. 9171).

Disinfection of Hides: The disinfection process appears on the surface to be a relatively simple matter but experience has shown that the use of acids and disinfectants sufficient to kill anthrax spores, in most instances injure the hides.

Disinfection of hides by bichloride of mercury and the Seymour-Jones method of using formic acid are not looked on with favor by leather manufacturers, for the hide is apparently injured by such treatment.

The Schattenfroh method is used successfully, at times with slight modifications, in Massachusetts. This method consists of a solution of 10 percent. sodium chloride and 2 percent. absolute hydrochloric acid (hydrogen chloride), the hides being kept in soak for 40 hours at a temperature of 60-70° F. Great care must be used in preparing the solution for the strength of commercial acid varies as follows:

HYDROGEN CHLORIDE IN COMMERCIAL HYDROCHLORIC ACID

18 degrees hydrochloric acid contains 27% hydrogen chloride.

20 degrees hydrochloric acid contains 31% hydrogen chloride.

22 degrees hydrochloric acid contains 34.5% hydrogen chloride.

Experiments by Dr. Francis H. Slack of the Sias Laboratories, carried out for a leather firm under practical conditions, showed that the solution of 10 percent. sodium chloride and ¾ of 1 percent. absolute hydrochloric acid is on the border line of successful disinfection and that 1 percent. acid and 10 percent. sodium chloride solution is satisfactory for killing anthrax sphores on hides. A temperature of 60-70° F. must be maintained and the hides kept in soak for 40 hours.

At present, as far as is known, the acid and salt method is used only in Massachusetts for routine disinfection of upper leather, although it is probably suitable for all leathers at different strengths of the solution.

Experiments by Dr. Slack made for the Massachusetts Department of Health showed that the following solutions will kill anthrax spores at 68° F.:

SOLUTIONS CAPABLE OF KILLING ANTHRAX SPORES

2% absolute hydrochloric acid and 10% sodium chloride.

2% absolute hydrochloric acid and 5% sodium chloride.

1.5% absolute hydrochloric acid and 10% sodium chloride.

1.5% absolute hydrochloric acid and 5% sodium chloride.

1% absolute hydrochloric acid and 10% sodium chloride.

1% absolute hydrochloric acid and 5% sodium chloride.

¾% absolute hydrochloric acid and 10% sodium chloride.

The solutions using less than ¾ percent. of hydrochloric acid failed to kill anthrax spores and for this reason it is desirable not to use less than 1 percent. of the acid.

Results of Disinfection of Hides by Acid and Salt Method: Wherever this method has been used no anthrax cases have been caused by the hides treated, although in one instance the strength of the acid used was only ¾ of 1 percent.

Results of Investigation:

(1) Anthrax infected hides, hair and

wool are being imported from foreign countries.

(2) Anthrax infected hides are shipped chiefly from Buenos Aires, Argentine, Hankow, China, and Calcutta, India.

(3) Federal regulations do not prevent the importation of infected material.

(4) Hides bearing the consular certificate have apparently caused anthrax cases.

(5) Hides, hair and wool can in most cases be successfully disinfected for anthrax spores.

(6) Anthrax cases operated on have a fatality rate double that of the non-operative cases.

Recommendations for the Prevention of Anthrax: There are several ways by which anthrax may be prevented.

(1) Quarantine of all hides, wool and hair from anthrax infected and suspected areas or areas about which information is lacking.

(2) Disinfection of all hides, wool and hair from anthrax infected and suspected areas or areas about which information is lacking. This disinfection should be done in the country where the hides, wool and hair are collected, preferably at the market center, where, by mass disinfecting, a trained corps of workers could disinfect material efficiently, successfully and at the lowest possible expense.

(3) An anthrax survey should be made by a corps of trained men, acquainted with anthrax and the hide and leather industry. This survey should consist of field investigations, to ascertain the prevalence of anthrax in regions where hides, hair and wool are collected for export, and the manner of collecting and preparing the different products for shipping. The collecting of this definite data by permanent investigators would enable a consul to have a far better knowledge of the hides, particularly on which he is requested to issue the "consular certificate."

(4) The disposal of sludge from hide vats should be cared for in such a way that no material can overflow the land and thus "seed" it with anthrax spores.

MILK IN FEEDING ANIMALS

A striking illustration of the value of milk for food for young animals is given in this picture which the JOURNAL presents through the courtesy of the New York State Department of Farms and Markets. These calves were shown together with similar couples of pigs, dogs and other creatures at a recent exhibition in the Grand Central Palace, New York City. These calves are two months old. The weight of the milk-fed one is 245 pounds, while the weight of the other is 145 pounds. The obvious moral is that milk is good for growing animals. Dogs which tell precisely the same story are shown on page 672 of this JOURNAL.

APPLICATION OF VACCINES IN PUBLIC HEALTH WORK

GEORGE W. McCOY, M. D.,
Director, Hygienic Laboratory,
Washington, D. C.

Read before the Conference of State and Provincial Boards of Health, at Washington, D. C., May 26-27, 1920.

An important service to health officers is this dispassionate appraisal of the practical advantages of vaccines. They are useful, but constitute no royal road to health. Aside from anti-enteric vaccines and the toxin-antitoxin mixture public health administrators need expect little help from the use of the bacterial vaccines that are known today.

I SHALL not consider the two vaccines that are on the most satisfactory scientific and practical basis, for the efficacy of smallpox vaccination is so well known that it is not an appropriate subject for discussion, and antirabic vaccine has importance only for the individual who has been bitten by a rabid animal.

Coming to the *bacterial vaccines,* we must appreciate primarily that to put a prophylactic vaccine of this kind on a sound basis two things are necessary: first, we must know what organism is the cause of the disease, and in addition we must know whether one can induce immunity by means of the killed organism. We have no rational basis for any influenza vaccine, considering now only the primary disease, because we do not know what particular organism causes the disease; even if we did know this we would still need to know that the organism was one against which it is possible to induce immunity.

The best illustration of our inability successfully to vaccinate against a disease, the etiological agent of which is well known, is tuberculosis. For many years we have known the organism which causes the disease, and we know a great deal about it, but we know no method of immunizing against infection.

Let us turn to the more encouraging fields. The evidence in favor of typhoid and paratyphoid vaccines appears to be almost perfect and I shall not attempt to review it even briefly, but will point out several features of special interest for this group.

1. Even a well-vaccinated personnel may show a rather high typhoid incidence if the infection is very heavy; in other words, the immunity is relative. It is not as complete, for example, as is the case with smallpox.

2. Vaccination should be repeated at shorter intervals than has been the custom. The old teaching that a single series of inoculations would protect for four years was probably too optimistic, since in military service it was found that vaccination in one or two years was required.

3. The civil experience with typhoid vaccine is rather meager; really we do not know how valuable it is under such conditions, and these are the conditions with which this body is concerned primarily. There are such effective methods of reducing typhoid fever practically to the vanishing point in a community without reference to vacci-

nation that under ordinary civil conditions we need not rely upon this, though it should be employed as a valuable adjunct in anti-typhoid work.

There are some exceptional circumstances, as with people going to a place where the hazard is very high, or with those inhabiting camps or other temporary communities where the proper safeguards do not exist that justify reliance to a large measure on typhoid vaccine.

There are two other intestinal infections which appear to be controllable, in part at least, by prophylactic vaccination, though the evidence at hand is not very extensive. I refer to cholera and to bacillary dysentery. In respect to the latter the evidence is particularly encouraging.

Neither of these diseases has any special significance for us in this country, though our dysentery problem is, I think, one worthy of more serious attention than it has had.

A vaccine against plague has, of course, been in use for a long time and almost all of the reports are encouraging, not to say optimistic, though not all will stand critical analysis. But the incidence of plague in the United States is so small, and we have such effective means of controlling it that, in my judgment, recourse to vaccination as a public health measure will never be required.

We must consider now the group generally designated as respiratory infections, and we will take up first the most promising of these. This is the toxin-antitoxin mixture which has been so extensively popularized in this country by Dr. Wm. H. Park. The indications all are that in the case of this preparation we have a reliable means of controlling diphtheria. Indeed, the results reported by Dr. Park and those working with him show that it is possible to eradicate diphtheria from schools and institutions. It has the disadvantage of requiring several doses, three or four, and the immunity response is not prompt; therefore, it is not a procedure for emergency immunization.

The subject of vaccination against whooping cough is one that is so often the subject of inquiry and there is so much optimism, unwarranted I believe, that I want to express the opinion that this is in a purely experimental stage.

Vaccination against influenza has interested, not to say agitated, us all in the past eighteen months more than any other one subject of this sort, I suppose. We have seen "success" obtained in the vaccination of what were really the naturally insusceptible persons in a group, and we have seen failure charged to a vaccine which did not have a fair trial because sufficient time had not elapsed to permit of the development of any immunity that the vaccine might conceivably be capable of evoking.

Our own experiments and those carried out by persons closely associated with the Hygienic Laboratory were all carefully controlled and in every instance failed to show any evidence in favor of the vaccine, whether the latter was made from Pfeiffer's organism alone or included, in addition, pneumococci and streptococci. We feel that we should say in passing that some of the most careless work we have ever encountered has been in connection with this subject of vaccination against influenza and its complications.

With respect to lobar pneumonia the experiments reported have been most encouraging. Our own work in this connection is not yet complete, but taking the most optimistic view of it possible restricts us to saying that there appears to be protection for a period limited to a few weeks, perhaps six or eight.

In connection with the subject of influenza and pneumonia we must not ignore a vaccine that we once hoped would prove a great advance in bacterial vaccines. I refer to the oil suspensions which are generally designated

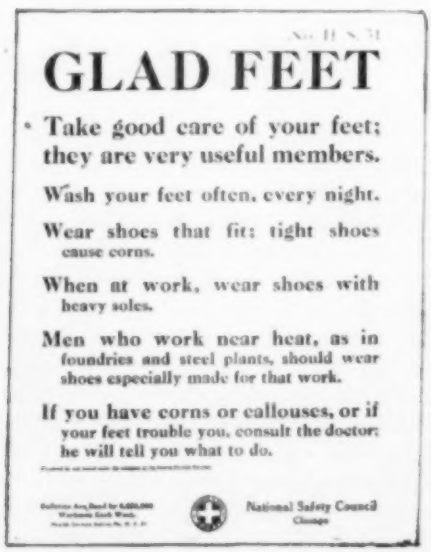
as lipovaccines. The reports from military sources were so encouraging that we were all hopeful that a very great advance had been made. Experience soon showed that there were unexpected obstacles to overcome and I regret that they have not yet been overcome. In the first place, it was very difficult to make the vaccine sterile. It is surprising how high a degree of heat organisms will resist in the oil suspensions, but differences of this kind can be overcome. A more serious matter was the discovery at the Hygenic Laboratory of the fact that oil suspensions of organisms were definitely less effective in provoking measurable immunity response in laboratory animals (and presumably in man) than were saline suspensions of the organisms. Thus far the defect has not been overcome. The Hygenic Laboratory has felt that it is unwise to recommend license for oil suspensions of organisms until these two serious defects had been overcome. If we were unduly conservative I hope that we may be pardoned.

From what I have said I am sure that I am justified in expressing the opinion that aside from antienteric vaccines and the toxin-antitoxin mixture we need expect little help in practical public health administration work from the use of bacterial vaccines.

Public Health administrators with whom I have discussed the subject have expressed the fear that the popularization of vaccines may interfere with substantial progress along other lines, but I see no indication that the public is enthusiastic enough about vaccines to warrant this fear; indeed, surprisingly few people will submit voluntarily to vaccination, even when every encouragement, including free administration, is offered.

GOOD WORK OF NATIONAL SAFETY COUNCIL

In the JOURNAL for January, 1920, mention was made of the methods whereby the National Safety Council is conducting its work of education. Further presentation of the posters, which are a most excellent means of impressing fundamental truths upon the people is made here. Under the caption, "Glad Feet," are a few simple rules. There are not many individuals who realize how dependent they are on their feet till something happens to them. The second poster contains excellent advice with reference to food. The National Safety Council places such posters before millions of people in this country.


No. H. S. 31
GLAD FEET
Take good care of your feet; they are very useful members.
Wash your feet often, every night.
Wear shoes that fit: tight shoes cause corns.
When at work, wear shoes with heavy soles.
Men who work near heat, as in foundries and steel plants, should wear shoes especially made for that work.
If you have corns or callouses, or if your feet trouble you, consult the doctor: he will tell you what to do.
National Safety Council
Chicago

No. H. S. 3
Bulletins Are Read by 2,500,000 Workmen Each Week
NATIONAL SAFETY COUNCIL, Chicago, Ills.
Eat the Proper Amount of Good Nourishing Food
BREAKFAST: Drink a glass of water preferably hot on arising, take no other beverage. Feeling the need of a breeze means that you have slept poorly, stayed up too late, or abused your health in some other way. Eat some fresh fruit if obtainable, otherwise cooked or preserved fruit. A cup of coffee has no food value, a cup of cocoa has; eat bread or toast, butter or syrup, a cereal and a small amount of eggs or meat. A light breakfast is preferable; chew your food thoroughly; do not wash it down unchewed.
Fear the fried breakfast; induce your wife to give up the practice, since frying wastes food and health. Fried food is hard to digest and 40 per cent of its food value is lost.

RELATION OF SCHOOL AND SPECIAL FEEDING TO DEFECTIVE NUTRITION

JOHN C. GEBHART,

Director, Department of Social Welfare,
New York Association for Improving the Condition of the Poor,
New York City

This author sets forth the futility of attacking undernourishment principally as a school problem. Experience both in this country and in England shows that school meals are merely palliative if unaccompanied by measures to raise permanently home standards of food and hygiene. The school measures must be fitted into the larger social machinery for dealing with the defect.

THERE is an unfortunate tendency to confuse defective nutrition with underfeeding and to assume that the mere provision of adequate food is sufficient to promote normal growth and development. School lunches and other forms of special feeding in the past, while temporarily assuaging hunger have contributed little toward an effective program for dealing with undernourished children. The experience of the past ten years, however, has thrown much light on the real causes of disturbed nutrition and has aided us in formulating a program for their removal.

England was thoroughly aroused to the physical condition of her youth during the Boer War, when she was obliged to reject two-fifths of her recruits because of physical disability. An investigation of the defects for which these young men were rejected indicated that defective nutrition during childhood was chiefly responsible for undermining their physique. School feeding was immediately heralded as the remedy par excellence for the deterioration of the British stock. As a result, in 1906 the "provision of meals" act was passed which provided for the public feeding of school children. The language of the act itself indicates clearly that undernourishment and underfeeding were regarded as synonymous. The act states that "no child shall be deprived of his education for lack of food."

The guarantee of government subsidy resulted in a vast extension of school feeding which prior to that time had been a popular form of philanthropy. In 1914, 29,560,316 meals were served. The high wages paid in war industries and government allowances for soldiers' families resulted in a marked falling off in the number of meals served until in 1918 only 6,503,140 meals were served. Children are selected for the meals on the basis of two tests: (1) the poverty test and (2) the physical condition of the child. The poverty test is the one most frequently used and often without any reference whatever to the child's physical condition except that he appears to be underfed. The Chief Medical Officer of the English Board of Education and other careful observers in England are keenly sensitive to the anomaly of this situation and are constantly urging the local authorities to employ the physical rather than the poverty test for the selection of the children.

A feeding experiment was conducted in Bradford, England, in 1907 to determine the effect of school feeding on undernourished children. Forty children who appeared to be most in need of food

were selected from two of the poorest schools in the city. From April 17th to July 24th this group was supplied with a hearty breakfast and dinner every school day. From the same schools 69 children were selected as a control and these received all of their food at home. At the end of the feeding period the children who had received the school meals showed an average gain of nearly two pounds in excess of the control group. The experiment proves conclusively that if underfed children are supplied with adequate food they will increase their rate of growth. But the experiment also showed that during the holidays when no school meals were served, the children not only failed to gain but actually lost most of the weight which they had acquired during the preceding weeks. While the latter disclosure was used as an argument for continuing the school meals during the holidays, an arrangement which has since been effected in that city, it also clearly indicates that the effect of the school meals if unaccompanied by other measures which permanently raise the food and hygienic standards of the home is merely temporary and palliative.

American practice in school feeding has never sanctioned the wholesale serving of school meals as the sole remedy for defective nutrition. Whereas in England 90% of the meals are served free, in America the same proportion are sold at a price which at least covers the cost of the food. School lunches were first introducted in Philadelphia, New York, and Boston, because large numbers of children were either going without lunch or were purchasing buns, pickles or other delectables from pushcarts and candy stores with the pennies that their mothers had supplied for their noon meal. The "penny lunches" as they were then called were simply intended to make it possible for children to purchase soup, cocoa, and other nourishing foods with the money that they were already spending for trash.

The importance of providing special feeding for groups of anaemic children and those threatened with tuberculosis has long been recognized and has been carried on extensively both in Europe and in this country. In England and on the continent such children receive a liberal provision of food which is far in excess of the normal requirement in order to enable them to build up resistance to disease and to bring them up to normal weight. After the child has been restored to normal health he is returned to his former environment. In America such children remain at home but attend school in special open air class rooms. The amount of food supplied varies from nothing at all to three-fourths of the child's required nutrition. The feeding is regarded simply as supplementary to what the child will or ought to receive at home. In this city, crackers and milk or cereal and milk are frequently furnished during the middle of the forenoon and afternoon. In many cases the child also receives a regular noon lunch at school.

The same difficulty has been encountered in special or supplementary feeding as in the regular school lunch. As long as an abundance of food is provided good gains are made but at the end of the feeding period the children lapse into their former state. Dr. Leopold Marcus, director of open air classes in this city, found that in one school the children were receiving two-thirds of the total food required but in spite of this extra feeding they did not make even the average gains. A study of the home conditions proved that the parents had cut down on the accustomed diet of the children at home because they were fed so well at school.

School feeding both in England and America has, therefore, failed to secure definite and lasting results when it has regarded the undernourished child as a detached unit who mysteriously appears at school at 8:30 in the morning and disappears as mysteriously at 4:00 in the afternoon. The factors which determine the child's nutrition are indissolubly tied

up with the home environment and standard of living of the family. Clinical experience with undernourished children indicates that an unregulated diet, bad hygienic habits, uncorrected physical defects, such as diseased tonsils and adenoids, chronic indigestion and other ailments, prevent children from making a normal gain.

The awakened interest in the seriousness of defective nutrition has resulted in various efforts to get at the fundamental causes and to deal effectively with them. Hospitals and other agencies have developed nutrition clinics where undernourished children are kept under medical supervision and where other physical defects likely to affect the child's nutrition are given attention. Nutrition classes which combine group instruction in food and health habits, with periodical visits to the home to secure the interest and co-operation of the parents, are conducted either as adjuncts of the nutrition clinic or in the public schools. These efforts even where no feeding is provided are producing most encouraging results in the building up of undernourished children. The school-feeding movement to be an effective weapon for combating defective nutrition must be made to fit into the larger social machinery now being developed for dealing with the defect.

As a preventive measure a school lunch in all neighborhoods where children are for any reason whatever not likely to receive the proper lunch at home can render a real service. Many of these children are not now victims of defective nutrition and may be prevented from falling into this class if they can be supplied with a warm nourishing meal during the noon hour at their school. The school lunch can be made the point of departure for sound educational procedure in the relation of food to health. The food served at the lunch counter should serve as a practical demonstration of the kind of food which normal children should receive daily. This work must not stop with the children, but various expedients must be used to interest the parents in what the school is doing and to get them to prepare similar food for the children at home.

The meals should be planned so as to provide a maximum of food value at a minimum cost. In this respect school lunches in American cities have suffered from the competition of the pushcarts and candy stores where food of very poor quality is sold. Milk products and fresh vegetables ought to be used liberally in the school menu but to introduce these elements will, of course, necessitate an increase in the prices charged. Cocoa made with water and a little condensed milk could be sold last year for two cents a cup at a slight profit; cocoa made with whole milk if sold for two cents entailed a loss. The increased price will drive some children to the pushcarts where apparently they get better value for their money. Such features must, therefore, be introduced gradually, increasing in quantity as a better appreciation of food values on the part of the children is developed.

One advantage of the English system of school feeding is that it is definitely linked up with the undernourished child, while in America this vital connection is usually left to mere chance. In selecting the schools for a lunch service, preference should be given to those schools in which the amount of defective nutrition is greatest. Moreover, in these schools, the children who are found to need nutritional care (grades III and IV of the Dunfermline scale) should be set aside for intensive work not only to insure their attending the school lunch regularly but to carry over to the home the entire nutrition program. For example, there are in a school of 2,000 children, 600 undernourished children. The principal or the school doctor should notify the parents at once of the child's condition and impress upon them the necessity of the child's attending the

lunch every day and of carrying out the instruction of the school nurse or school dietition. These children should be weighed weekly and a failure to make at least the expected gain will call for further study of the home conditions and a physical examination of the child to determine what is retarding him. The problem must then be taken up with the parents to see that the necessary corrections are made either in the child's habits or physical condition.

In many cases it will be wise to provide supplementary food for undernourished children, but this must always be done in such a manner as to impress the mother with the fact that the food supplied at school, whether purchased by the child or served gratis, is simply intended to supplement the normal food allowance which he should be getting at home. One of the schools in this city has been able to accomplish excellent results with its undernourished children by supplying them with either milk and crackers or cocoa and crackers during the forenoon and afternoon. Besides this the principal keeps in very close touch with the home conditions of all such children. In addition to the feeding she has secured the removal of diseased tonsils and adenoids, has had the mouths put in a hygienic condition and has influenced the mothers to provide better food at home.

School feeding is given a lesser role in the program for dealing with defective nutrition than the one ascribed to it in earlier days, but it is one of strategic importance. The school lunch can be made the center from which radiate various activities dealing with the child's nutrition. There is something very concrete and appealing about a real meal which carries its message over to the child much more effectively than any amount of preaching on the subject. As long as the school lunch or special feeding are administered in a truly educational spirit and are co-ordinated with all other well-considered efforts their contribution to the work with defective nutrition will be most important.

MILK-FED VS. NO MILK

These dogs tell their own story of the food value of milk. They were shown at the Grand Central Palace, New York City, by the New York State Department of Farms and Markets, to which the JOURNAL is indebted for the picture. See also page 665.

WHAT IS THE MATTER WITH PUBLIC HEALTH?

DISCUSSION *

HIBBERT W. HILL, M. D.,

Executive Secretary, Minnesota Public Health Association, St. Paul, Minn.

Millions for tribute; not one penny for defense.

The fundamental difference between the view of the Health Officers' duties which Dr. McCombs so lucidly champions (A. J. P. H., Dec., 1919) and that view he calls for convenience "Dr. Hill's" (A. J. P. H., Nov., 1919) seems to be brought out best as follows:

Dr. McCombs assumes that the health officer now has responsibilities concerning both compulsory and voluntary public health activities and he condemns "my" plan because it (he thinks) proposes dividing these responsibilities between the health officer and the voluntary public health agencies (the latter, of course, taking the voluntary activities, i. e., all related to personal hygiene and to therapeutics).

As a matter of fact "my" view is quite the converse, and, remember, I am speaking of the duties and responsibilities of the health officer, not of those of the Government as a whole, which is a quite different matter.

My view is that the health officer has undivided, and indivisible, responsibilities, but concerning compulsory public health activities only, i. e., against *preventable* disease; and that he has none whatever concerning the voluntary activities above outlined. For the health officer to "pass over to voluntary agencies" his voluntary responsibilities is, in my view, impossible; simply because, in my view, he has no such voluntary responsibilities to pass over. The situation is, in my view, that the health officer in some instances has secured or is attempting to secure voluntary activities that do not belong to his office and that he has assumed them, not for the reason that they are properly his, but, as Dr. McCombs frankly and clearly agrees, because these voluntary activities have a popular appeal and may bring to the health officer the public sympathy, support, and prestige which he now, alas, lacks.

I have not succeeded yet in putting my own point of view of the situation more clearly to my own mind than by a parable; and perhaps I will be pardoned for repeating that parable here.

General Pershing was authorized, equipped, and sent to Europe for the one purpose of combating the Germans and defeating them. Suppose that, instead of his doing this, he had decided that the relief and reconstruction of the devastated areas were more popular, would get him more public sympathy, greater prestige, etc.

The relief work in Europe was enormous, infinitely insistent, humanitarian, a moral duty than which there was no duty higher. But though it was perhaps the moral duty of the American people to relieve the distress, it clearly was not General Pershing's duty, moral or otherwise. He had his own work set out clearly before him.

The health officer of today, as Dr. McCombs agrees, has not made good in his admitted primary duty—defense against infectious disease. He has not in most instances seriously attempted it even. If Pershing had not seriously attacked the Germans; had fought a battle or two; had been defeated and had then sat back, lamenting; with what face could he have come to the American people and said, "Because of my failure in the duty you authorized, equipped, and sent me to do, I have decided that I want still other duties, enormously varied, expensive, not military at all, for which I am not authorized or equipped; but I find the Germans do *not* want to be defeated; and I find the war-orphans *do* want to be relieved! Also, I find fighting too dull, too difficult, and, to be frank, not popular enough—let me handle relief! True, I have totally failed in the one job you gave me, but I now promise to do the same job, and another one with it, to your eminent satisfaction."

The parable is not perfect—no parable can be in every detail. I want to set forth the moral and not the technical situation, and have doubtless exaggerated the situation a

*For previous presentation of views see Dr. Hill's original article in the A. J. P. H. for Nov., 1919, page 827, and the reply by Dr. Carl E. McCombs, A. J. P. H., December, 1919, page 951.

little; but there are some useful analogies to be drawn.

Pershing *could* fight the Germans—and as we all know, he beat them; but he did not do it by directing his energies, his men, and his money to reconstruction work! The voluntary agencies, on the other hand, could not fight Germans—they were not authorized, equipped, or sent for that—but they could and did the thousand things that Pershing could not, and their relief and reconstruction work has become a monument for all time.

Dr. McCombs very broadly and quite properly defines Public Health to include everything relating to the health of the public. My own definition makes Public Health apply "to all mankind, in every physical relation." But his *non sequitor* (as I conceive it)—is—that because Public Health includes all health activities, therefore, the *Health Officers' duties* include all health activities too. As well quite properly define morals to include every form of public moral welfare, and then say—the *Police Department* must therefore handle everything relating to morals, education, etc., schools, universities, asylums, jails, and all social uplift agencies, private or public. The Police Department was not created to promote moral welfare, but to prevent crime—a very different thing indeed. The promotion of morals is a great duty, but it is not their duty. The policeman's duty may be an unpopular, difficult duty, but is that the reason he should abandon it, and go teaching Sunday school, or become a university professor of ethics?

Public health, defined to include everything relating to physical welfare, must include, therefore, the hygiene and sanitation of all human beings, sick or well; that is, it includes hygiene, the practical application of physiology to the physical operation of every human body at every age and stage; sanitation, the adjustment of the surroundings of all humans to their bodies' needs; and therapeutics, which is the hygiene and sanitation of the sick.

Now, if I understand Dr. McCombs aright, he assumes that the control and direction of this enormous field is the duty of the health officer, who therefore must not only control infection (an intricate specialty) but also maternal welfare (an intricate specialty), infant welfare, pre-school supervision, medical school inspection, hospitals, tuberculosis sanatoria in all their detailed details, eye-clinics, venereal clinics, playgrounds, water supplies, milk supplies, foods, drugs, drug addiction (all intricate specialties) and how much more? Where will the health officer of today, or the superhealth officer of tomorrow, find the brains, the time, the energy, to say nothing of the funds or the authorization, thus to control the therapeutics and the day-by-day lives of all the race?

Surely such minute supervision embodies a splendid ideal—but an ideal not agreed in by the Christian Scientists, the various medical cults and fads, and all the others who believe they know therapeutics as well as the health officer does, and how to live hygienic lives much better! Do our health officers, as a matter of fact, know therapeutics and hygiene so perfectly that they may set up compulsory standards for them? Dr. McCombs well says that as a class they have not intelligently or efficiently exercised the knowledge or the powers they now have relating to disease!

Is it not well known that we have no Federal Department of Health, partly, at least because of the belief that that department when formed would not confine itself to control of infection (I think almost everyone would endorse that program) but would extend its field to control of treatment and to compulsory hygiene? The cry of its opponents, successful so far, has been that the propagandum for a Federal Department of Health was nothing but a camouflage, in guise of public health, to impose therapeutics on the country! Untrue? Yes, but repeated by Hon. Joseph G. Cannon no less, in last September Harper's—a view not to be pooh-poohed as the opinion of the densely ignorant, since such a leader makes it, and Harper's gives it circulation everywhere.

Dr. McCombs' article supports a view interpretable as our enemies would wish it interpreted, i. e., that public health is not for control of disease, but for control of therapeutics and hygiene.

I cannot forbear protesting against the attitude that the control of the infectious diseases is a mere bagatelle, not worthy the time of a health officer—a disagreeable police duty without field for exercise of professional training or skill or shrewdness. This attitude is not uncommon. It is the outgrowth of the sad fact that, as it is too often now conducted, control of infection is not only

an administrative but also a professional and technical farce, not over 1% efficient, if so much. If health officers really devoted their attention to infection—not conducting the campaign by a mere routine placarding of reported cases, which routine placarding they expect to continue, and their successors after them, forever and ever—but as a very lively war with an enemy requiring to be sought out and conquered, no health officer would be able to complain of lack of employment or of dullness in his duty. We have only begun to study and to handle the venereal diseases—and tuberculosis we have not really even begun to study, from the epidemiological standpoint. Yet the control of the infectious diseases is regarded as a small side issue, something anyone can do—already largely done—hardly worth while! Even the fundamental error that the control of infection rests upon reporting by physicians is repeated over and over—yet no health department can pretend to be 50% efficient even in locating cases, while it relies upon such reports; nor until it reverses this situation and is finding the cases itself and is reporting them to the physicians—until it knows more of the ramifications of infection in its community than all the physicians of the community know, all put together.

This attitude of mind recalls the inversion, as quoted in the Boston Health Department Bulletin of April, 1920, of the Great Revolutionary slogan, "Millions for defense, not one penny for tribute." The devotion of health department activities to hygiene, therepeutics, correction of preventable defects, coupled with their neglect of prevention inverts the slogan to read—

"Millions for tribute to disease—
Not a penny to fight it."

SUMMARY

1. "My" plan does not propose that the Health Officer divide his present responsibilities, but only that he assume no more—at least until the present duties concerning infection are really done, not merely talked about.

2. This leaves to the voluntary associations the largely experimental, wholly voluntary, and quite uncontrollable public health activities which the law has not and probably will not assign to the health officers except here and there; activities for which health officers are by no means equipped and which merely distract them from their proper duties. I mean those voluntary activities involving therapeutics and personal hygiene.

3. Health Officers should accomplish their notoriously neglected first duty, the control of infection, and then and not until then, come into court with clean hands, if they wish to ask the popular sympathy and support, which contrary to Dr. McCombs' theory of the public feeling, the public do grant to really competent and efficient policing; which really competent and efficient policing, however, they rarely get from health officers as a class today.

4. Health officers as a class should not engage themselves in educating the public—few health officers know what to teach, still fewer how! The universities and the schools are the proper places for education, and the voluntary agencies do it as well as any one does it at present, particularly since the schools, the universities, and most health departments have fallen down on the job.

5. Finally, I am not arguing that the Government should not conduct therepeutics and hygiene to the very limit—if the public will let them—but I do argue that the health officer is not the Government; and that he is not authorized to do these things now, is not able to do them now, and that it would be very unwise for him to attempt them now. I am speaking of health officers as a class—as they exist all over the United States—not of a few super-health officers, acting under peculiar circumstances in certain small areas to whom special legislation has granted uncommon powers.

To secure the A. P. H. A. Special Train to the Coast, 125 reservations are necessary. These must be ordered this month. Do not have the train cancelled for just a few belated reservations. Get your place in it and

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WHAT IS A HEALTH CENTER?

"What is a health center?" is a question that many have asked and not a few have answered. The answers, unfortunately, vary. Two things are apparent: that there is no meeting of minds on the part of those who have assumed to answer this question; and second, a multiplicity of definitions has served to confuse the inquirers, and perhaps retard the growth of this valuable and fairly new phase of public health work. It may not be possible at this time to devise standards for the work of health centers or for those in the field of public health to agree on just what these institutions are or should be. Certainly, health centers must be as diverse in kind and scope as are local health departments. There does exist a fairly uniform conception of what the health departments are or at least what they should endeavor to become. It seems not unreasonable, therefore, to hope for a similar uniformity in the conception of health centers.

Dr. McLaughlin, in his "Standardization of Municipal Health Organizations" recently stated, "The term 'health center' has been loosely used as a name for everything from a milk station to a miniature health department." This is literally true. The term health center has been applied to child welfare stations, tuberculosis dispensaries, infant welfare stations, the offices of public health nurses, groups of dispensaries, venereal disease clinics, the out-patient departments of hospitals, settlement houses, sub-stations of local health departments, recreation centers, gymnasiums, at least one commercial bowling alley, and with the exception of the last, it has been given to manifold varying combinations of two or more of these. Seventy-five different activities have, in fact, been listed that are at present conducted in health centers, and this figure probably does not account for all existing activities nor exhaust the possibilities.

In the face of this condition it is not surprising that the definitions that have been offered are numerous as well as diverse.

1. Health Centers are the manifestation and result of coöperation within the municipalities. (Editorial, *Am. Jour. Public Health.*)

2. A Health Center is a place where people may come to learn how to keep well. (Editorial, Massachusetts Bulletin, *The Commonhealth.*)

3. The Health Center is an institution which coördinates in a centrally-located building all the public health and relief agencies of the community. (Alameda Co. Health Center.)

4. The Health Center is a means by which the community is in actual touch with the health nurse and social workers. (Krusen.)

5. The Health Center idea means doing things for everybody and doing things together within a given district. (Davis.)

6. It is a small combination of the health, hospital, and dispensary departments, affiliated with the charity organization society, tuberculosis association, district nursing associaton, and other eleemosynary organzations the aggregation operating as a conjoined whole. (Fronczak.)

7. A Health Center is the physical headquarters for the public health work of a community. (Red Cross.)

8. By combining the administrative health functions with other essential auxiliary duties and health-promoting efforts, the health center could be made the radiating source of all local health activities, both public and private. (Hoffman.)

9. A Health Center is a building to which the general public may go to learn how to preserve health and from which are operated the various matured plans for protecting the public health. (Wood.)

10. A real Health Center should be a complete health department. (McLaughlin.)

Some of these statements have doubtless been made as descriptive of particular health centers and are not proposed as generic definitions. There are, however, three general ideas evident in practically all the literature on this subject. These are, first, a health center is a physical headquarters at which, or from which, is conducted some form of activity that attempts to prevent disease or promote health; second, there is an effort to coördinate activities and, if possible, to bring about a coöperation of agencies; and third, there is an emphasis on the attack of public health problems from the standpoint of a district or a community, rather than from the standpoint of a particular affliction. There is a concurrence of opinion among most health workers on these three points as elements of the health center idea. More than this probably cannot be agreed upon in the present conception of a health center. The use of the term health center as a camouflage for a venereal disease clinic or the use of the advertising value of this term to bring trade to a milk station, a bowling alley, or any other institution of such limited scope, either public, philanthropic or commercial, does not enter into the present discussion. H. N. C.

SUCCESS AND FAILURE IN MENTAL HEALTH

President William H. Burnham of the Massachusetts Society for Mental Hygiene, in a recent address emphasizes the importance to mental health of a great deal of success and of occasional failure. He points out that one of the greatest defects in present-day education is that some of the children are doomed to persistent and repeated effort. Ambition is thereby dulled and mental development retarded, if indeed serious mental defects are not invited.

In his "Measure of Mentality," Dr. Arthur Sweeney brought to attention in a public address the fact that all men have not the same degree of mentality, nor as high a standard as is generally supposed. Based on an army test of three million American soldiers, he says, "It is somewhat of a shock to realize that the average of human intelligence in this country is that of a child of about twelve years of age." Applying these results to the population of the country means that more than forty million of our population have a mental age of not greater than our highest grammar school requirements. There is little wonder then that

among children within the schools the same mental age is not reached by all. The result of this is that many of the children are not able to carry on the standard grade of school work. It follows that such children soon enter a rut of continuous failure from which there is little chance to emerge. Five or six years of continuous failure of this type is certain to leave a permanent effect.

Another condition which leads to such failure of school children is the endeavor to bring about symmetrical development regardless of the natural aptitudes of the child. To illustrate this, President Burnham quotes Professor Dolbear's interesting myth of the antediluvian animal school. The purpose of this school was to produce graduates that could swim, climb, fly, and run equally well. The duck was penalized for not walking and climbing gracefully. The eagle could make no headway in climbing to the top of a tree although he could get there by flying, so the monarch of the air was degraded. An abnormal eel with large pectorial fins was found who could run, swim, climb trees, and fly a little, so he was made valedictorian.

This little fable does illustrate a condition in schools, which one of our leading college presidents once jocosely suggested is to be met only by a separate school for each individual student. This principle is not absolutely absurd, excepting, of course, in an extreme application, and there are tendencies in the modern methods to care for certain classes of students, notably those termed deficient, by giving them special attention so that they will not hold back the normal pupils in the school. There have been so many of the great scholars and scientific men who were failures in their early school days that it is a question whether the difficulty does not lie in the effort to make the child fit the curriculum, rather than to provide a course of studies that will develop the child. In these times standardization is a desideratum, and standardization in pedagogy has doubtless brought with it many advantages, but the educational profession is recognizing and will continue to recognize the necessity for the system of teaching an unusual child in an unusual way. The subnormal child will thus be relieved of the discouragemet of continual failure.

A little failure, no doubt, as President Burnham points out, is of distinct value. Invariable success tends to an overbearing nature, the more so if it is met during the earlier and formative period of life.

Note.—President Burnham's paper is entitled, "Success and Failure as Conditions of Mental Health," published in *Mental Hygiene*, Vol. III, No. 3, and Dr. Sweeney's paper is entitled, "The Measure of Mentality," published in *Minnesota Medicine*, November, 1919.

In Memoriam

WILLIAM CRAWFORD GORGAS

Major General William C. Gorgas, formerly Surgeon General of the United States Army, died in London, England, on July 4. His last appearance at a public function was at the Brussels Health Conference in the latter part of May, where he was decorated by King Albert. Returning to London on May 29, he immediately suffered a stroke of apoplexy, with the result of his death.

General Gorgas had accomplishments second to no other man in this country in public health work. Improvement of health conditions in Panama and Cuba are two of his major achievements. He it was who fought and defeated the malarial mosquito that had made the task of cutting the Panama Canal an insuperable one to the Frenchmen. His work in combating yellow fever in Cuba rid the northern hemisphere of that century-old focus of infection. Previous to his coming, the death rate had been 200 to 1,200 annually, but now the island is virtually free from the disease.

General Gorgas made himself felt in many insanitary quarters of the globe.

Under the direction of the United States Government and the International Health Board, he supervised campaigns against yellow fever in Central America, Peru and Ecuador. On the invitation of the British Government, he went to South Africa in 1913 to establish sanitary conditions in the Rand. For this work he received high honors from the medical profession in London, and Oxford University conferred a degree on him.

He was decorated by the French Government and made a Commander of the Legion of Honor. He was knighted by King George of England.

He reached the age limit while still on duty in France in 1918 and was retired from active service in the army at the conclusion of the war. In 1919 he was appointed head of the Yellow Fever Commission of the International Health Board.

General Gorgas became a member of the American Public Association in 1901, and, although not serving as an officer, was ever active in its councils and a frequent contributor to the pages of the JOURNAL. Together with General George M. Sternberg, Dr. Henry D. Holton, Dr. Stephen Smith and Dr. Frederick Montizambert he was elected to honorary membership in the Association at the Rochester meeting, September, 1915.

BOOKS AND REPORTS REVIEWED

Food Inspection and Analysis. Albert E. Leach. Revised by Andrew L. Winton. New York: John Wiley & Sons Co. Fourth Edition, 1920. Pp. 1090+XIX and 41 plates. Price, $8.50 net.

The scope and plan of this standard work is so well known to food chemists and all who have had occasion to make analyses of food materials as to need no comment. In the present edition, which represents somewhat of an increase in size over the previous one, the general outline and method of treatment is still retained. The principal changes consist in some omissions of obsolete methods and the elimination of the alphabetical bibliographies at the ends of the chapters, and in the addition of considerable material in special lines, in order to bring the work more nearly in accord with present practice.

Of these additions, the most noteworthy and commendable are probably the sections devoted to meat extracts; the table of the constants of edible oils, which is much improved; the chapter on wine, especially the portion devoted to the detection of watering; and the detection of adulteration in vinegar; which has been brought up to date. The chapter on the detection and separation of animal and vegetable colors has been practically rewritten and greatly improved, full advantage being taken of Mathewson's work on colors. Some new methods are noted in the examination of flavoring extracts.

A deletion that is perhaps just as well is the procedure for the detection of spoilage in ketchups by miscroscopical examination, which has been severely and justly criticized. On the other hand, more might well have been added in regard to egg substitutes and nut butters, food products which are quite in vogue at present. These might well have been accorded some of the space still retained for numerous processes for the detection of preservatives in milk, a form of adulteration of probably greater historical than practical interest in these times.

The discussion of the detection of watering and of skimming of milk, especially the latter, is still entirely inadequate, as it was in the previous edition. It certainly seems strange that nothing is said in a standard book, published at this day, about the significance of protein-fat or fat-sugar ratios in the examination of milk, except for the few words tucked away in the discussion of the milk serum. The formulæ for the calculation of sugars in jams and jellies are still retained, even the meaningless one for total invert sugar, although they are of little practical value, and are not "perfectly accurate" in any case.

Several slight errors of commission and omission, noted in going through the work, are perhaps worth mentioning, although they would not lead astray anyone familiar with food analysis. The Massachusetts milk standard (p. 147) is no longer a variable one, and the statements made are quite in error as to its meaning. The normal weight for the Laurent instrument is given as 16.19 on page 135 and as 16.29 on page 606. The footnote on page 789, referring to Anderson's work, should be to Journal of Industrial and Engineering Chemistry, not to Technology Quarterly. On page 827, the reference to Mulliken should be to Vol. III, not Vol. VI.

To those who were familiar with Leach and his work with the Massachusetts State Board of Health, it is very pleasant to see characteristic portions of his book retained in sufficient proportion to give it still the early charm it had, and at the same time well-chosen additions made that bring it right "up to the minute," and make it a safe guide in almost any path of food examination.

A. G. WOODMAN.

✣

Instruction Camp of 1919. Department of Health, Pennsylvania, Bulletin 104, Harrisburg, February, 1920. 345 pages.

During the summer of 1919, the Pennsylvania Department of Health established the novelty of a camp of instruction of public health, which its employees were asked to attend. The camp was arranged to continue for one month and the courses given there were divided into two consecutive periods of approximately two weeks each, half of the physicians and nurses attending at one time. This did not interfere with the continuity of regular work of these officers.

The report is valuable because, in addition to the story of the camp itself, there are presented, entire or in abstract, the lectures given to the students. Under the circumstances, these were, of course, condensed stories touching closely on the very many phases of the health officer's work, not forgetting that of the nurses. The main subjects included administrative policies, engineering, contagious diseases and hospitals, a special section devoted to tuberculosis, laboratory procedures, a symposium on milk and food values, sanitary education, hygiene and sanitation in the public schools, child welfare, mental hygiene, home economics, and the social diseases. More than 75 papers are assembled in this report, and although these were addressed especially to the personnel of the Pennsylvania Department they bear equally good lessons and quite as valuable instruction to others engaged in this very necessary work of public health. The discussion of housing was accompanied by the distribution of literature. The functions of the tuberculosis dispensaries were made the subject of a discussion, as were a number of papers in this particular section. Laboratory work was not forgotten, and especial information was given with reference to the method of preparing and sending forward the specimens. Municipal milk control and pasteurization were dominant topics in a discussion of milk, with Professor E. V. McCollum, of Johns Hopkins University, to speak a few words on the subject of its nutritive value. Taken altogether, the volume will be important for the information of those engaged in practical health work.

✣

LATEST TUBERCULOSIS BOOKLET IN FRENCH

The Rockefeller American Commission for Preservation against Tuberculosis in France, in its campaign in coöperation with the French Government, has issued a delightful booklet, "Principes d'Hygiene," which is in the form of a primer, although addressed to adults. Its profusely and strikingly illustrated bits of advice, however, appeal to children and grown-ups alike.

The first section is devoted to the "Care of Children," with advice to mothers on care of themselves, the baby's food, air, and exercise; with warnings to avoid divers vices, which are pictured, such as raising dust while baby sleeps, spitting, and using unclean milk. Correct breathing, proper care of the teeth and eyes, too, have their illustrations.

Then follows a treatment of the subject of tuberculosis itself, picturing its woeful effects, giving bits of advice as to its care, and a list of aphorisms for its prevention, for example, "Cough into your handkerchief," "Avoid crowds," "Use an individual cup," "Wash hands often," "Open your windows," and "Keep clean."

Pictures of the curse of alcoholism, of the ravages of disease-bearing flies, of the necessity of placing wells in ground which will not receive drainage from stables and outhouses give their warning or their good advice. A section on the "Health of Workmen" advocates, not only for the benefit of the workman himself, but also of the employer, society, and the country, sanitary, safe, well-ventilated and lighted factories and workshops, with provision for recreation and care in accident or illness. Here there is profit for the workman, the employer, society in general, and the State.

The community is told its duty—to organize a Health Service, which will preserve it from disease by inspecting the milk, by isolating persons with contagious diseases, and by analyzing milk and water in bacteriological laboratories.

There are four charming full-page illustrations: one with ruddy-cheeked children, picturing the benefit of open air classes; another telling of the disappearance of illness and the advent of health, which comes with the visiting nurse of the hygiene bureau; and the two illustrations accompanying this article—the healthfulness of playgrounds, and the coming of health "like good luck, during sleep—with open windows."

From the mediaeval herald on the front cover announcing to the people the good news of good health to the last page with its symbol of tuberculosis warfare shedding its illuminating rays, the little book is a succession of attention-compelling features, with text that shows the rare skill of the paragrapher and illustrations in that artistic spirit inseparable from the French.

ASSOCIATION NEWS

HEALTH EMPLOYMENT BUREAU

Help-wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the fifteenth of each month. In answering keyed advertisements, please mail replies separately.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

Chemist (male) wanted for Panama Canal; Must be graduate in Chemistry or Sanitary Engineering, and have had satisfactory experience in water purification work. Must be an American citizen under 50 years and in good health. Entrance salary $181 month increased to $200 month after three months' satisfactory service. Free steamship transportation to Isthmus. For further particulars write "Chief of Office, The Panama Canal, Washington, D. C."

Some good health officers with pep—no fossils or corpses need apply. Salary $3,000. Georgia State Board of Health.

Health officers wanted for county organizations in New Mexico. Initial salary $2700 to $3000 per annum.. Experienced men preferred. New and interesting field. Climate and living conditions excellent. Address State Commissioner of Health, Santa Fe, New Mexico.

Full time health officer is desired for Oakland County, Mich. Salary, $3,600, with allowance of $700 for auto maintenance. Address 361, care of this JOURNAL.

Supervising nurse, Protestant faith, qualified to handle staff of five nurses—organization comparatively new, must be capable of handling some phases of pioneer work. Salary $150 per month. Address J. G., 377, care of this JOURNAL.

Competitive examination to fill two vacancies in district health office force. Will be held by the Mass. State Dept. of Public Health at the State House, Boston, September 20th and 21st, 1920. All persons interested and possessing necessary qualications are requested to communicate with Dr. E. R. Kelley, Commissioner of Public Health. Initial salary, $3,000.

SAN FRANCISCO MEETING

Members who wish to avail themselves of the special A. P. H. A. train from Chicago to San Francisco or the special cars from New York and Boston connecting with this train are requested to write immediately to the nearest of the A. P. H. A. Travel Chairmen. These are:

Chicago—Dr. W. A. Evans, 906 Tribune Building.

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Boston—Secretary, A. P. H. A., 169 Massachusetts Ave.

Reservations should be ordered at once in order that the minimum guarantee requirements may be obtained. Should the minimum number of reservations not be secured before the end of August, it may be necessary to cancel the special train.

Programs of the meetings will be sent out with the JOURNAL appearing August 20, the date having been moved forward in order to secure their early distribution. All final notices will appear in the same JOURNAL.

MEMBERSHIP CAMPAIGN

The Membership Campaign up to the time of going to press has resulted in the addition of 1,700 names to the membership lists and it is reasonable to believe that the total accessions will touch 2,000 new members before the time of the Annual Meeting. The total of memberships and subscriptions now stands at 6,000.

Since the report in the July JOURNAL, page 612, California has increased her percentage of quota filled from 145 to 164, while Maryland and D. C. has gone over the top, jumping from 82 to 104. The actual number of new members is 1,687, or 56 per cent.

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Miss Miriam Dougherty, Monmouth.

INDIANA

J. C. Royse, M. D., Indianapolis.
Paul R. Tindall, M. D., Secretary Board of Health, Greensburg.

IOWA

Prof. Earle L. Waterman, Iowa City.
Matie Simonsen, R. N., Public Health Nurse, Waterloo.
W. D. Hayes, Sioux City.
J. E. Swanson, M. D., County Physician, Sioux City.
Anna Forbes, R. N. School Nurse, Sioux City.

KANSAS

Earl G. Brown, M. D., Topeka.
Alberta Bailey, R. N., Supervisor T. P. A. N. Association, Topeka.

LOUISIANA

R. M'G. Carruth, M. D., New Roads.
M. O. Beenel, M. D., Health Officer, New Roads.

MARYLAND AND DISTRICT OF COLUMBIA

James W. Armstrong, Baltimore.
Edward S. Hopkins, Sanitary Chemist, Orangeville.

Rosa E. Prigosen, Baltimore.
Arnold L. Swancara, Bacteriologist, U. S. P. H. S. Hospital, St. Louis.

R. H. Riley, M. D., Baltimore.
Maryland Social Hygiene Society, attention of Alan Johnston, Jr., Baltimore.
J. J. Murphy, M. D., County Health Officer, Annapolis.
F. O. Reinhard, M. D., Baltimore.
R. C. Salter, State Bacteriologist, Baltimore.
A. L. Sullivan, Food & Drug Commission, Baltimore.
E. E. Wolff, M. D., City Health Officer, Cambridge.
H. F. McPherson, M. D., County Health Officer, Centreville.
Prof. Edward F. Webb, Supt. Public Instruction, Cumberland.
W. N. Palmer, M. D., County Health Officer, Easton.
H. P. Fahrney, M. D., County Health Officer, Frederick.
W. N. Kirkman, State Board of Health, Halethorpe.
Merritt Brice, M. D., County Health Officer, Millington.
H. Arthur Cantwell, M. D., County Health Officer, North East.
H. M. Slade, M. D., County Health Officer, Reisterstown.
William T. Pratt, County Health Officer, Rockville.
Lewis K. Woodward, M. D., Secretary Board of Health, Carroll County, Westminster.

William Royal Stokes, M. D., Baltimore.
Stanhope Bayne-Jones, M. D., Associate Professor Bacteriology & Pathology, Johns Hopkins Medical School, Baltimore.

E. G. Kastenhuber, Jr., Easton.
A. E. Goodrich, Resident Engineer, State Department of Health, Easton.

J. S. Bowen, M. D., Mt. Washington.
C. L. Mattfeldt, M. D., Health Officer, Catonsville.

Lewis O. Taynton, M. D., Salisbury.
C. C. Ward, M. D., Health Officer, Crisfield.

James A. Tobey, Washington.
Edward R. Hunter, M. D., American Red Cross, Washington.

Carroll Fox, M. D., Washington.
Blanche E. Myers, Washington.

B. J. Lloyd, M. D., Washington.
James E. Miller, M. D., U. S. P. H. S., Marine Hospital Division, Washington.

MASSACHUSETTS

Mary Beard, R. N., Boston.
M. Grace O'Bryan, R. N., Associate Director, Instructive Dist. Nursing Association, Boston.

B. W. Carey, M. D., Boston.
Annie Lee Hamilton, M. D., Boston.
Russell B. Sprague, M. D., Foxboro.
Mary H. Goerlach, Supt., Frederic S. Coolidge Memorial, Pittsfield.
Joseph E. Lamb, M. D., Member Board of Health, Revere.
Laurence S. Howard, Clerk of Board of Health, Somerville.

A. W. Hedrich, Boston.
Mary Beard, R. N., Director Instructive District Nursing Association, Boston.

Prof. C. M. Hilliard, Boston.
Miss Tryphosa R. Worcester, Manchester, N. H.

Prof. J. O. Jordan, Boston.
Prof. Theodore James Bradley, Dean Mass. College of Pharmacy, Boston.

R. U. Spencer, Boston.
Adelbert L. Safford, Supt. of Schools, Reading.

Prof. C. E. Turner, Boston.
R. J. Campbell, Old Town, Maine.

B. E. Roberts, M. D., Springfield.
Chicopee Board of Health, attention Charles J. O'Brien, Agent, Chicopee.

MICHIGAN

Fred. O. Adams, Detroit.
Miss Elsa T. Schueren, Detroit.

Mrs. L. E. Gretter, Detroit.
Henry G. Stevens, Detroit.

M. W. Robinson, R. N., Ypsilanti.
Marvle W. Rayburn, Public Health Nurse, Ann Arbor.
Charles Pillsbury, M. D., Health Officer, Ypsilanti.

MINNESOTA

Wm. F. Reasner, M. D., Minneapolis.
W. F. Kunze, Member Board of Public Welfare, Minneapolis.

Linda James, St. Paul.
Clay County Public Health Association, attention of Mrs. Albert Thysell, Sec., Hawley.

C. E. Smith, Jr., M. D., St. Paul.
C. L. Scofield, M. D., Vice-President State Board of Health, Benson.
Riverside Sanatorium, attention Sara W. Dunton, Superintendent, Granite Falls.
Prof. S. Marx White, Prof. of Medicine, University of Minnesota, Minneapolis.

MISSISSIPPI

G. G. Hampton, M. D., Tupelo.
A. D. Tisdale, M. D., County Director of State Board of Health, Ripley.

MISSOURI

George H. Jones, M. D., Jefferson City.
T. A. Son, M. D., Member State Board of Health, Bonne Terre.
T. H. Wilcoxen, M. D., Bowling Green.
Edith B. Lowry, M. D., U. P. H. S., Jefferson City.
M. B. Harutun, M. D., Commissioner of Health, Joplin.
Emmett P. North, M. D., St. Louis.
Wilson J. Ferguson, M. D., Sedalia.

MONTANA

W. F. Cogswell, M. D., and John J. Sippy, M. D., Helena.
Margaret Irish, R. N., Billings.

J. X. Newman, Missoula.
Florence W. Dixon, Missoula.

NEW JERSEY

Louis Schneider M. D., Newark.
William B. Watson, Member Board of Health, Belleville.

Josephine S. Pratt, Newark.
Evelyn G. Chase, Supervisor, P. H. Nursing Service, Nashville.

A. Clark Hunt, M. D., Trenton.
Edward Guion, M. D., Bureau of Health, Atlantic City.
Charles Englander, M. D., Pathologist, Cedar Grove.

A. W. Hedrich, Boston, Mass.
Rutgers College Library, New Brunswick.

NEW MEXICO

D. B. Williams, M. D.
Mrs. J. P. Stone, Portales.

NEW YORK

G. C. Supplee, Adams.
Louis J. Auerbacher, New York.

Edmund C. Boddy, M. D., Albany.
Harriott P. Churchill, R. N., Exec. Sec. Oneida County Tuberculosis Commission, Utica.

Frank W. Laidlaw, M. D., Albany.
George F. Wilklow, M. D., Health Officer, Ellenville.
Edward C. Rushmore, M. D., Health Officer, Tuxedo Park.

James S. Walton, M. D., Amsterdam.
B. F. Bishop, M. D., Garrattsville.

H. S. Baketel, M. D., Brooklyn.
A. E. Sherndal, Ph. D., Brooklyn.

Edward Clark, M. D., Buffalo.
W. G. Sprague, M. D., Health Officer, Barker.
Herman F. Senftner, M. D., Epidemiologist, State Health Dept., Buffalo.
Arthur O. Hahl, M. D., Clarence.
Edwin Shoemaker, M. D., Health Officer, Newfane.
Chancellor H. Whiting, M. D., Health Officer, Medina.
Anne L. Hansen, R. N., Superintendent District Nursing Association, Buffalo.

Rachel M. Palmer, Geneva.
Elizabeth M. Hennessy, R. N., Industrial Nurse, Geneva.

Halsey J. Ball, M. D., Glens Falls.
C. J. Crippen, M. D., Health Officer, Constable.
Katherine Lee, County Tuberculosis Nurse, Cortland County.
J. B. Washburn, M. D., Health Officer, Delmar.

Morris Maslon, M. D., Glens Falls.
Marjorie M. Bucknam, R. N., Public Health Nurse, Glens Falls.

John A. Conway, M. D., Hornell.
George H. Fox, M. D., Binghamton.
Clayton M. Axtell, M. D., Health Officer, Deposit.
F. C. Annabel, M. D., Health Officer, Elmira.
Charles N. Hammond, M. D., Health Officer, Elmira.
Eugene Bauer, M. D., Oswego.
W. W. Bachman, M. D., Prattsburg.
J. F. Trant, M. D., Prattsburg.
B. R. Wakeman, M. D., Hornell.
James P. MacDowell, M. D., Dundee.
H. M. Humphrey, Health Officer, Penfield.
Addison T. Halstead, M. D., Pushville.
F. J. Colgan, M. D., Health Officer, Rochester.
Ida B. Sammis, Huntington.
Mrs. Frederick D. Bidwell, Chairman Child Hygiene, Albany.
B. Eleanor Easton, Kingston.
E. E. Norwood, M. D., Kingston.
Mary C. Hurlbut, M. D., Lockport.
Lemuel R. Hurlburt, M. D., Lockport.
LeRoy W. Hubbard, M. D., Mt. Vernon.
John H. Tallman, M. D., Health Officer, Mt. Vernon.
Edwin G. Ramsdell, M. D., Health Officer, White Plains.
Herman M. Briggs, M. D., New York City.
Frances M. Hollingshead, M. D., Director Buffalo Foundation, Buffalo.
C. E. Ford, M. D., New York City.
S. B. Buckley, M. D., General Chemical Co., Denver, Colo.
Charles E. Cord, M. D., General Chemical Co., Chicago Heights, Ill.
William F. McNary, M. D., E. St. Louis, Ill.
S. Pirosh, M. D., General Chemical Co., Baltimore, Md.
John G. Kraus, M. D., General Chemical Co., Elmhurst.
A. Quackenbush, M. D., General Chemical Co., Northpines, Ontario.
W. W. McChesney, M. D., General Chemical Co., Monarat, Va.
H. Sheridan Baketel, M. D., New York City.
Gustave P. Metz, Ph. D., Vice-President, H. A. Metz Laboratories, Inc., Brooklyn.
Miss Harriett Staples, New York.
Mrs. Walter P. Bliss, New York City.
C. R. Hervey, M. D., Oswego.
Robert Simpson, Jr., M. D., Fulton.
John R. Murlin, Ph. D., Rochester.
Harold H. Baker, M. D., Rochester.
Fitch, Prince & Palmer, attention Ralph P. Fitch, M. D., Rochester.

NORTH CAROLINA

G. E. Reynolds, R. N., Charlotte.
Bunyan McLeod, D. D., Charlotte.
W. S. Rankin, M. D., Raleigh.
Foy Roberson, M. D., Durham.
N. C. Landowners Association, attention Mr. W. A. McGirt, Vice-President, Wilmington. (Sustaining membership.)

OHIO

G. W. Moorehouse, M. D., Cleveland.
H. J. Luff, Sanitary Engineer, Cleveland.
H. O. Way, Cleveland.
Miss Harriet Boewig, Asst. Bacteriologist, Board of Health, Cleveland.
H. T. Phillips, M. D., Cleveland.
William C. Groeniger, Columbus.
A. E. Smith, State Dept. of Health, Columbus.

PENNSYLVANIA

W. S. Stevenson, F. E. Daniels and J. Warner Fortenbaugh, Harrisburg.
George T. Hammond, Brooklyn.
D. E. Hottenstein, M. D., Millersburg.
Louvilla Snyder, Community Nurse, Millersburg.
W. L. Stevenson, Philadelphia.
Ivan M. Glace, District Engineer, Department of Health, Harrisburg.
A. W. Hedrich, Boston, Mass.
Roland P. Wear, M. D., Berwick.

SOUTH CAROLINA

C. E. Smith, M. D., Columbia.
Jean B. LaBorde, M. D., Health Officer, Columbia.
R. A. Murphy, Chief Sanitary Inspector, Columbia.

SOUTH DAKOTA

F. W. Freyburg, M. D., Aberdeen.
C. J. Lavery, M. D., Aberdeen.
P. B. Jenkins, M. D., Waubay.
F. E. Files, Geddes.
Mary G. Fraser, State Supervisor of Nurses, Waubay.
H. J. Herman, M. D., County Supt. Board of Health, Webster.

TEXAS

V. M. Ehlers, Austin.
Inez A. Newman, R. N., State Advisory Nurse, Austin.
Henry E. Elrod, Sanitary Engineer, Dallas.
George Parker, Sanitary Engineer, Washington, D. C.
R. M. Grimm, M. D., San Antonio.
J. R. Hawkins, M. D., A. A. Surgeon, U. S. P. H. S., Freeport.
R. A. Wilson, M. D., A. A. Surgeon, U. S. P. H. S., Terlingua.

UTAH

T. B. Beatty, M. D., Salt Lake City.
Hon. Frank T. Burmester, Mayor, Grantsville.
L. S. Merrill, M. D., Ogden.
The Industrial Commission of Utah, Salt Lake City.
M. J. Seidner, M. D., Health Officer, Storrs.
Wellsville Board of Health, attention W. O. Christenson, M. D., Wellsville.

CANADA

A. W. Hedrich, Boston, Mass.
Department of Health, attention of Dr. George G. Melvin, Fredericton, N. B.

HAWAII

A. W. Hedrich, Boston, Mass.
Major James S. Simmons, M. C., Officer in Charge, Dept. Laboratory, Honolulu, H. T.

PUBLIC HEALTH NOTES

Abstracts by D. GREENBERG, M. P. HORWOOD, JAMES A. TOBEY and HOMER N. CALVER.

Problem of the Skinny Child.—This was the subject of an address by Dr. Caroline Hedger before the American Home Economic Association in June. She maintained that a large ratio of the skinny children of the country are from families other than the poor and the foreign born.

That parents do not have a vital sense of the seriousness of this condition in their children was brought out by the fact that they, in most cases, defend their child with such excuses as, "But Johnny is growing" or "Johnny looks like his father's family" without the slightest realization that Johnny is a physical and financial menace to society.

The rapid growth of a child is only one of the three childhood demands for proper nourishment, the speaker maintained. The second is a reserve force for future development and the third is a ceaseless activity which is necessary if a child is to keep well and develop control over muscle, nerve and brain.

Proper feeding is the remedy for this con-

dition in children, according to Dr. Hedger who was for four years director of the Infant Welfare Commission of the Board of Health of Chicago. During the war she was for six months in conquered regions of Belgium where she made a survey of the feeding of children, and is now medical director of the Elizabeth McCormack Memorial Fund in a large child welfare agency in Chicago.

"We have always supposed that given a good home the child will eat. This is not so. I know of absolute cases of semi-starvation which have had nothing to do with poverty. We are up against new demands which we have never faced before. We are face to face with the demand for better and stronger children.

"Does your child possess that something which makes him feel like jumping up and down on the sidewalk when he starts out for school in the morning?" questioned the speaker. "This is life. This is health. This is the unconscious and harmonious working of the body, the reserve vigor which is life's essential. Health makes your child resistant to disease. It is the skinny child who gets tuberculosis."

✣

Antiscorbutic Orange-Juice Powder.—According to a paper on "The Antiscorbutic Properties of Concentrated Fruit Juices," by Harden and Robison published in the April number of the *Biochemical Journal*, the drying of fruit-juice has been successfully carried still further. The technical procedure has followed the lines of milk-powder production by the spray process, which avoids a temperature likely to reduce, if not to kill, the potency of the antiscorbutic agent. From the results obtained it is reported that a highly active dried orange-juice can readily be prepared on a commercial scale which will keep after prolonged storage under suitable conditions. The orange-juice, mixed with corn syrup, was forced as a fine spray into a chamber where it met a current of air heated to 75°-80° C. The drying was almost instanteous, and the product when tested on guinea-pigs was found to afford complete protection from scurvy. As the authors point out, the peculiar value of such a substance lies in its adaptability for infant feeding and for the use of expeditions of long duration, where fresh fruit and vegetables are unobtainable and when transport must be reduced to a minimum. It would appear that orange-juice is decidedly superior to vegetable juices in regard to keeping its activity when exposed to relatively high temperatures. In spite of this observation the investigation of the effects of storage on dried orange-juice at tropical temperatures remains to be determined.—Editorial, *Lancet*, May 29, 1920. *(D. G.)*

✣

On the Control of Measles.—In a special report, the medical officer of health for the borough of Whitehaven gives his observation on the value of home nursing for cases of measles occurring in young children.

In discussing the subject of home nursing Dr. McIntosh lays stress on two points, the benefit of individual sufferers, and prevention of the spread of disease. The nursing of measles he considers is a definite part of welfare work, because the heaviest incidence of the disease is amongst young children, *i. e.* those under five years of age, and also that measles if not properly treated at the onset, paves the way for serious and often fatal complications. As to prevention of spread, he attaches considerable importance to the nurses' visits in detecting missed or concealed cases as well as their impressing on the parents the dangers of the disease.—*Medical Officer*, June 5, 1920, 221, *(D. G.)*

✣

Carries Health to Little Czechs.—More than 10,000 Czecho-Slovak children will be taught to play and started on the road to health this summer by an American teacher, Miss Emily Pipal, of Des Moines, Iowa, who has sailed for Prague where she will assist in setting up children's health camps of the Junior Red Cross of America. Miss Pipal is of Czech extraction and speaks the Czech tongue. Junior Red Cross playgrounds and summer camps have been established throughout the new country of which Prague is the capital, and thousands of under-nourished and sick children will be sent to them for holidays of a month or longer. Plenty of exercise, some simple instruction and nourishing food will be the means of restoring these youngsters to health.—*(J. A. T.)*

STATE HEALTH NOTES—LEGISLATION

National.—The Sixty-sixth Congress adjourned on June 5, 1920. The only bill of any importance to public health passed since the last article on national legislation appeared in the JOURNAL was H. R. 13,229, which created a Women's Bureau in the Department of Labor. The Vocational Rehabilitation Bill (H. R. 4438) was also passed and signed by the President on June 2. The Shepard-Towner Bill to give Federal aid to states for maternal and infant welfare work was reported favorably by the Senate Committee on Public Health on June 2 with an amendment to Section 8 which provided that work shall "be carried on in such manner as may be mutually agreed upon by the Federal Board and any state receiving the benefit of the act." No action on this bill was taken before adjournment. The France bill to create a Federal Department of Health did not get out of committee. The Cold Storage bill (H. R. 9521) also failed of passage. A bill (H. R. 385) to prevent the shipment in interstate commerce of food liable to botulism was introduced on June 3 and referred to the Committee on Interstate Commerce, where it remained until adjournment.—(*J. A. T.*)

✣

Public Health in the Platforms of the Two Leading Parties.—*Republican.*—A number of matters of interest to health workers are contained in the Republican platform, which was adopted in Chicago during the Convention in June. The party is pledged to the solution of social problems. A thorough system of physical education for all children up to the age of 19, including adequate health supervision and instruction as a remedy for conditions revealed by the draft, is advocated to add to the economic and industrial strength of the nation.

A plank also refers to the public health facilities of the government. The language is as follows: "The Public Health activities of the Federal Government are scattered through numerous departments and bureaus, resulting in inefficiency, duplication and extravagance. We advocate a greater centralization of the Federal functions, and in addition urge the better coördination of the work of the Federal State and local health agencies."

The platform condemns child labor and demands Federal legislation to limit the hours of employment of women engaged in intensive industry, the product of which enters into interstate commerce. It commends to Congress the permanent establishment of the Women's Bureau in the U. S. Department of Labor to serve as a source of information to the states and to Congress. The information on housing and town planning collected by the Government during the war is urged to be made available.

Democratic.—The Democratic platform, adopted on July 2, also contains several matters on public health. It urges coöperation with the States for the protection of child life through infancy and maternity care; in the prohibition of child labor and by adequate appropriation for the children's bureau and the women's bureau in the Department of Labor. A continuation of appropriations for education in sex hygiene is also urged.—(*J. A. T.*)

✣

Massachusetts.—The Legislature of 1920 passed an important law authorizing cities and towns to establish and maintain dental, medical and health clinics and to conduct health campaigns in connection therewith. Two or more towns are authorized to unite in obtaining such service.

✣

New Mexico.—Regulations governing the sanitation of public school buildings have recently been passed by the State Board of Health. The State Health Department is also coöperating with the Department of Education by having all county and city school superintendents include the salary and expenses of at least one school nurse in the budgets for the next year.

✣

Legislation in Favor of Physical Education.—During the past year and the first four months of 1920 progress in legislation favoring physical education has taken a remarkable step forward. Three Southern states have been added to the list having such laws and the total number of states with such provisions is 19.

Between 1914 and 1918 the following States passed laws: New York, New Jersey, Rhode Island, Illinois, North Dakota, Maryland, Delaware, Nevada, Alabama and California. In 1919 Washington, Oregon, Utah, Maine, Michigan and Indiana "went over the top."

Alabama.—The Alabama State Board of Health devoted the end of June to a conference of all physicians and clinicians interested in venereal disease control. Speakers were secured for the morning, which was given over to lectures, while in the afternoon there was a clinic at which there were more than 100 patients. The conference was in charge of W. C. Blasingame, S.A., U. S. P. H. S., Director of the Bureau of Venereal Disease Control.

✚

Connecticut.—The spring meeting of the Connecticut Public Health Association was held in New Haven, June 2. Dr. Thomas F. Joyce, physician in charge, spoke of the Treatment of Drug Addicts at the New York Department of Health; Professor Lafayette B. Mendell, of Yale University, on Practical Hints on Diet, and Dr. Walter H. Brown on the Health Center in Community Life. A demonstration was given of the technique of the Schick test for diphtheria diagnosis.

On June 10 the New Haven County Public Health Association held a meeting in New Haven. E. M. Bailey, Ph.D., spoke on Food in Health and Disease, Miss Marion Sherwood on Typhoid and Carriers, and Stanley H. Osborn, M.D., on Practical Work in Detection of Typhoid Bacillus Carriers.

The Child Hygiene Institute met in the State Capitol, June 3-4, Dr. John T. Black, State Health Commissioner, presiding. In the four sessions a dozen papers were presented, visits were made to the Bany Health Station, the children's pavilion at the Hartford State Tuberculosis Sanitorium, and the Isolation Hospital. For the education of the public, films, "An Equal Chance," and "Our Children," were shown at a local theatre in the evening.

✚

Kansas.—The Diagnostic Laboratory of the State Board of Health and the Public Health Laboratory, formerly at Rosedale, have been combined in a Public Health Laboratory in Topeka, the Director of which is Dr. Kenneth F. Maxcy, from Johns Hopkins University. Mr. C. A. Haskins, for ten years Sanitary Engineer for the Board, has resigned, to be succeeded by Albert H. Jewell. Lieut. Jewell was Camp Sanitary Engineer, Selfridge Field, Mt. Clemens, Michigan, from November, 1917, to August, 1918. From August, 1918, to March, 1919, he was Water Supply Officer of the 26th Engineers in France.

✚

Kentucky.—Dr. F. A. Stine of Newport, Ky., has been appointed to the State Board of Health in place of the late Dr. I. A. Shirley, of Winchester. Dr. Oscar Dilly, of Louisville, Ky., Dean of the College of Pharmacy of the University of Louisville, has been appointed member of the State Board of Health under the recent law adding a pharmacist to the Board. Dr. Dilly was formerly Superintendent of the City Hospital in Louisville.

Under the model law of 1918, full-time health departments have been created in the under-named counties, each of which has an annual appropriation of at least $10,000. The following Health Officers have been appointed:

Daviess County, J. H. Hamilton, M.D., Owensboro; Boyd County, Robert D. Higgins, M.D., Ashland; Scott County, C. N. Caldwell, M.D., Georgetown; Harlan County, Ralph J. Malott, M.D., Harlan; and Muhlenburg County, Ben Wilson Smock, Greenville.

For Mason County no officer has yet been named.

✚

Louisiana.—Dr. George J. Dempsey of New Orleans, has been appointed State Registrar of Vital Statistics, in place of Dr. John H. Ellis, deceased.

✚

Florida.—At Perry in Taylor county the State Board of Health, in coöperation with the local Board, the U. S. P. H. Service, and aided by industrial corporations, has undertaken an important anti-malarial project, the cost of which is to be about $30,000. The importance of this may be judged by the fact that it represents a per capita cost of $16 or $17, while the usual cost of such work has not been above a maximum of $2. The plans call for about five miles of large channels for drainage, 20 feet wide at the top, and 7 feet wide at the bottom, with a general depth of 5 feet.

✚

Maine.—A remarkable decrease in the number of deaths from measles in Maine, during the past year, has been brought to light in the compiling of vital statistics for 1919 by the Maine Department of Health. There were but four such deaths during the past twelve months, as compared with 102 measles deaths in 1918. The death record for the

past year is further remarkable in that a decided decrease is noted in every disease except cancer and whooping cough. In the case of whooping cough, a jump from 34 deaths in 1918 to 104 in 1919 is shown, while with cancer, the number of deaths has increased by over fifty.

✚

Massachusetts.—With reference to lethargic encephalitis, Dr. Eugene R. Kelley makes note to the JOURNAL that, early in 1919, the advisability of making the disease reportable was considered by the Massachusetts State Health Department. The Committee on Preventive Medicine of the Department decided that it was not desirable at the present time, on account of the small number of cases, the transitory duration of the disease, difficult diagnosis, and the moral effect on the public of making it reportable. In May, 1920, the Department requested the opinion of the Massachusetts Association of Boards of Health, and as a result the recommendation is given forth to all doctors to report all suspected cases of the kind to local boards, so that investigation may be started. The Department still does not deem it necessary to add this disease to the list of reportable ones.

Dr. Mary Putnam, of Cambridge, Mass., has been appointed Clinic Physician in the Division of Hygiene of the Massachusetts Department of Public Health. Dr. Putnam will conduct clinics for children, especially in the rural parts of the State. No treatment will be given; cases needing medical care will be referred to the family physician. The emphasis will be laid upon the prophylactic examination of the well child, offering an opportunity to discuss with the parent the health needs of the child. This clinic will be conducted in as simple a manner as possible, in order to encourage the local communities to carry on the work themselves.

Dr. Milton J. Rosenau has resigned as Director of the Division of Biologic Laboratories, State Department of Health, and has been succeeded by Dr. G. Benjamin White, formerly Assistant Director. Dr. James E. Henry has been appointed epidemeologist to the Department.

✚

Michigan.—Mr. Albert E. Kunze, a recent graduate in Sanitary Engineering at the University of Michigan, has been appointed an Assistant Engineer in the Michigan Department of Health. G. C. Stucky, of Louisville, Ky., formerly assistant at the Trudeau Foundation Laboratory and since then connected with the University of Michigan Medical School, has been appointed Bacteriologist in the Laboratories of the Michigan State Board.

✚

Minnesota.—To encourage study of the means for the prevention and cure of tuberculosis, the Hennepin County Tuberculosis Association of Minneapolis, Minn., announces that it has set aside a fund for the support of a tuberculosis research fellowship in the Graduate School of the University of Minnesota. The candidate for the fellowship must be a graduate of a Class A medical college. He will be expected to devote himself to research in some problem concerned with the causes, prevention, or cure of tuberculosis. No teaching or other service will be required. The fellowship yields $750 the first year and progressively increasing amounts to be appropriated for the second and third years, as conditions warrant. Inquiries and requests for application blanks should be addressed to the Dean of the Graduate School, University of Minnesota, Minneapolis, Minn.

In and about Minneapolis and St. Paul there are three tuberculosis sanatoria and a children's preventorium. These, with the University's laboratories, its hospital, clinics and dispensary, and the thirty hospitals of the Twin Cities, constitute an inviting field for the medical research student who wishes to study the anti-tuberculosis problem either from its bacteriological, clinical, or social aspect.

The State Board of Health now offers its assistance anywhere in the state in diagnosis or treatment of venereal diseases. It is ready to demonstrate the preparation and administration of arsphenamine or neo-arsphenamine, the taking of blood, the examination of smears, etc.

✚

New Jersey.—At the Child Hygiene Conference, Asbury Park, New Jersey, June 12-14, 1920, Dr. Julius Levy, of Newark, presiding, a program with reference to mothers, babies, care of babies and children, and their food and treatment was given. One of the interesting items in Surgeon General Cumming's speech was that of the value of dried milk powder. He called attention to the cooperation of the Public Health Service with

the Boston Baby Hygiene Association, the Department of Pediatrics of the Massachusetts General Hospital, and the School of Preventive Medicine, Harvard, and noted that an investigation had been conducted in Boston. The perfection of a process for making milk powder will not only utilize quantities of otherwise wasted milk, but will furnish wholesome milk to babies all over the world, and safeguard baby lives. Another point touched upon by Surgeon General Cumming was the examination of juvenile delinquents, in which he spoke of the custom in the District of Columbia of making physical and mental examinations of such children for the information of the Court. This examination is followed up by the necessary medical-social work for proper correctional and training methods.

The policy in operation in the State of New Jersey is the control and education of midwives. The large foreign population makes this treatment a desirable one, and the principle of the Department is to give all a chance to improve and to eliminate those unable or unwilling to be taught. There are 450 licensed midwives, of whom 30 are untrained; about half the remainder are carefully trained but do not always carry out the good technique they were taught; and the rest are poorly trained but follow the instructions from local physicians. Only four possessed ample sanitary outfits.

Mrs. Katherine T. Fitzgerald, Supervisor of "Related Family Problems," reported to the conference on three important subjects: unmarried mothers, day nurseries, and boarding homes for children. Of the 800 cases of unmarried mothers referred to the Bureau, 397 were sent to private or public organizations in their counties for supervision, and 150 mothers and their babies were returned to the homes of relatives or friends, 12 were placed in domestic service, 12 mothers were married, and 3 remained in hospitals. Day nurseries should use the services of a trained worker, and should help keep the family together, rather than disintegrate it. Not infrequently the nursery is used as a storage place for the baby at times when the mother's absence from home is not necessary. With reference to boarding homes, the interest and aim of the Department or Health is to find out the kind of chiidren boarded, to try to do preventive work by supervision of the unmarried mother problem, and those of desertion of children, and boarding children for profit only.

In outlining the aim of the State work for babies, Miss Charlotte Ehrlicher, Supervisor of Nurses, stated that the first principle is prevention—to keep well babies well, and next to teach mothers how to care for their sick babies where there is no visiting nurse. The staff of this Division includes 60 nurses and 73 doctors, whose services are voluntary. There are 75 baby "Keep-Well stations." Four automobiles are provided, and the State gives supervision to two municipal groups, saving the cost of this supervision to local authorities.

✚

New Mexico.—The State Health Department is giving a course to cover a period of four weeks in the subjects of child hygiene and community nursing at the State Summer Normal School. Mr. Harold F. Gray, of the Department, is in charge.

It is planned to establish three and perhaps five full-time county health organizations in the state during the coming year. Under the provisions of a special act passed by the Legislature in February last, counties and cities may levy a half-mill tax for health work. The Department seeks men to fill the positions of full-time county health officer.

✚

New York.—Lethargic encephalitis has been added to the list of reportable communicable diseases in New York State, by action of the Public Health Council of the State Department of Health.

Fifty-seven graduates of the 1919 and 1920 Post-Graduate Course in Infectious Diseases and Public Health, which has been conducted under the joint auspices of the Albany Medical College and the State Department of Health, Dr. C. C. Duryee, Director, met at the former institution on June 24 for the purpose of organizing the "Eastern New York Post-Graduate Public Health Association." The following officers were elected: Honorary President, Dr. Charles C. Duryee, State Department of Health; President, Dr. M. D. Dickinson, Troy; Vice-President, Dr. W. C. Treder, Scotia; Secretary and Treasurer, Dr. W. G. Keens, Albany; Executive Committee: Dr. J. H. Collins, Schenectady; Dr. G. S. Eveleth, Little Falls; and Dr. Wm. Van Doren, Mechanicville.

It was decided to have two meetings annually, one of which is to be held in conjunc-

tion with the State Annual Conference of Health Officers. Dr. Hermann M. Biggs, State Commissioner of Health, and Dr. Thomas Ordway, Dean of the Albany Medical College, were elected honorary members of the Association.

The Jewish Agricultural and Industrial Aid Society is planning to install a permanent exhibit on its property at Ellenville, N. Y., to demonstrate to the farmers and summer boarding house proprietors in the vicinity how wells, springs, cesspools, sewage disposal plants and privies should be constructed and maintained in rural districts. The exhibit will consist of full size models built in accordance with the best modern practice and arranged so as to be readily accessible for inspection. The plans for the models were submitted to the Engineering Division and several changes were made in them to conform to the suggestions of that Division.

Acting on information from the State Department of Health, the district attorney of Jefferson County recently caused the arraignment of a young lady living in West Carthage for breaking quarantine while carrying virulent diphtheria organisms. Evidence was presented showing that subsequent to occurrence of a diphtheria case in her home and the obtaining of a positive culture from her throat she went to Schenectady, where she was later discovered and taken to the Isolation Hospital. On her release she was taken to Carthage, arraigned and held for action by the Grand Jury.

Dr. Hermann M. Biggs, State Commissioner of Health, has been given the honorary degree of Doctor of Science by Harvard University, in recognition of his work in combating tuberculosis.

✣

New York City.—Twenty-one thousand employees in 27 factories in the Bush Terminal section of Brooklyn will be given an opportunity of learning the primary problems of public health this summer through an arrangement just made by the Health Service Department of New York County Chapter American Red Cross.

A series of five health lectures for five weeks, in each of a number of factories, making a total of 148 such health talks, has been arranged by the Speaker's Bureau of the Health Service Department of the Chapter.

The speakers who are giving their services in this public health campaign are specialists. The list comprises Dr. Eric S. Green, field representative for the First Aid Department of the Brooklyn Chapter; Capt. Walter W. R. May, of the U. S. Public Health Service; C. G. Brook, City Physical Director for Industry, of the Brooklyn Y. M. C. A.; Prof. Charles E. Barr, of the Atlantic Division, American Red Cross; and Dr. Helen W. Brown, of the American Social Hygiene Association.

✣

North Carolina.—Reports from the 100 counties to the State Board of Health for the month of June show the smallest number of typhoid fever cases since accurate statistics have been kept in the state. For the month a total of 152 cases were reported as against 432 cases reported during June of last year, a reduction of 280 cases this year.

The Board has been concentrating in its efforts against typhoid fever through anti-typhoid vaccination and the installation of sanitary privies. These efforts are bearing fruit as shown in the decrease in the number of cases and in the steadily decreasing number of deaths from this cause. In 1919 there were 427, a reduction of more than fifty per cent in five years.

To enforce strict compliance with the State sanitary privy law the engineering division of the State board of health is placing additional inspectors in the field for the purpose of checking up communities which have previously been inspected by the regular field men of the health department. Where previous instructions for the construction and maintenance of sanitary privies have not been followed prosecutions under the law are being made.

Among recent prosecutions were three of the largest property holders in the town of Henderson. Each defendant entered plea of guilty and judgment was suspended for 30 days pending their compliance with the law. At Norwood six property owners were convicted for failure to provide sanitary privies.

"Your name has not been found among the 773 physicians who reported 8,274 cases of venereal disease to this office during the year ending March 31, 1920, though a careful search of our records has been made."

This is the way in which Dr. Millard Knowlton, Medical officer in charge of the Bureau of V. D. calls the attention of North Carolina physicians to the fact that they are not report-

ing in accordance with the requirements of the law. This and letters addressed to the physicians has resulted in a marked increase in reporting.

Other letters addressed to the doctors have resulted in an average attendance of 50 per cent at the meetings throughout the state in a campaign of special instruction to physicians.

✣

Ohio.—A course in Industrial Medicine is to be given at Ohio State University under the supervision of the Department of Public Health and Sanitation of which Dr. E. R. Hayhurst is in charge. The course, which is open to physicians who are recent graduates of Class-A schools, will begin with the college year in September. It will offer a certificate of Graduate in Industrial Medicine. Remunerative interneships are a part of the plan.

Arrangements have been completed at Ohio State University for the teaching of Public Health Nursing in both the one term and a one year course, the latter leading to a certificate. A five year course in Science-Nursing lead to a B. S., as well as the graduate nurse degree. The nursing courses are under Assistant Professor, Mrs. Norma Selbert, in the Department of Public Health and Sanitation and are to be given in conjunction with the local and State Health Departments and nursing associations.

✣

Virginia.—The State Registrar of Vital Statistics is to take drastic action against those physicians who fail persistently to comply with the law requiring the reporting within ten days of the birth. In Augusta County more than 60 percent of the births are not thus properly registered. Legal action is to follow the future neglect to comply with the law.

Mecklenburg County with the financial coöperation of the local branch of the Red Cross has guaranteed a fund of $5,000 to be strengthened by an equal sum from the State Board of Health and the International Health Board for the establishment of a county health unit. A preliminary year's demonstration has been given by the U. S. Public Health service. The intention is to secure a medical health officer, undertake public health nurse work, look after school inspection, improve water supplies and undertake intensive health measures.

At a Farmer's Union picnic in Brunswick in June, funds were raised for the employment of county health nurse and plans were set on foot for a child welfare conference in the near future.

In Pittsylvania County out of 5,978 school children inspected, 1,353 were found to have defective sight, 546 have incipient deafness, 2,214 have enlarged tonsils, 1,091 are suffering from adenoids, and 4,609 have decayed teeth. The summing up of all the defects averaged about two to a pupil.

Virginia had 1,838 more births and 886 fewer deaths the first quarter of 1920 than in the corresponding period of 1919.

The aggregate number of births reported is 15,148 for the quarter ending March 31, 1920, while for the like period in 1919 the number was 13,310.

Deaths for the 1920 period stated reached an aggregate of 9,853 while for the first quarter of 1919 the total was 10,639.

✣

West Virginia.—In coöperation with the State Board of Health, an Oral Hygiene Unit of the Public Health Service is making a state-wide survey of dental hygiene problems in West Virginia, with special reference to school children. The unit is visiting every county seat in the state and making inspections of the mouths of a number of children attending school, demonstrating to the community the extent of the dental needs of the school population, and assisting the local communities in perfecting measures whereby dental services can be provided where such do not now exist. At the same time teachers are being instructed in the principles of dental prophylaxis. Eventually it is hoped to have the proper authorities establish mobile dental clinics to visit the schools throughout the state. The American Red Cross is interested in this work and has furnished sufficient funds for the dental unit to give necessitous children tooth brushes and tooth paste.

✣

Nova Scotia.—Dr. D. A. Craig, for five years medical superintendent of the Queen Alexandria Hospital, London, Ontario, and during the war consultant in diseases of the chest for Military District No. 1, of the Canadian Army, has been appointed tuberculosis examiner by the Massachusetts-Halifax Health Commission. He will give his entire time to tuberculosis work and to educational phases of public health contemplated by the Commission. He will supervise the three tuber-

culosis clinics being organized in the health centers and serve as a free tuberculosis consultant to physicians in Halifax and Dartmouth.

Dr. B. Franklin Royer, Executive Officer, has also announced the appointment of Dr. Gordon Wiswell as the physician to be immediately in charge of the prenatal, baby, preschool age and malnutrition services in Health Centre No. 1; and of Dr. Hugh W. Schwartz as the physician immediately in charge of the nose and throat services. Dr. M. J. Carney, who organized the first tuberculosis clinic in Halifax, will continue in charge of at least one of the Health Center tuberculosis clinics.

The Commission recently announced the names of a consulting staff,which will coöperate with Dr. Royer, in determining the policies in health centre work. Their names are as follows:

Col. John Stewart, Dean of Dalhousie Medical School.

Dr. Frank Woodbury, Dean of Dalhousie Dental School.

Dr. Arthur Birt.

Dr. George M. Campbell.

Dr. S. J. MacLennan.

Dr. R. Evatt Mathers.

CONVENTIONS, CONFERENCES, MEETINGS

August 10, Portland, Ore., American Society of Civil Engineers.

August 20-21, Denver, Col., National First Aid and Rescue Contest, U. S. Bureau of Mines.

September 2-4, Duluth, Minn., Mississippi Valley Conference on Tuberculosis.

September 6-7, Omaha, Neb., Missouri Valley Medical Society.

September 7-8, Ogden, Utah, Utah State Medical Association.

September 7-9, Saratoga Springs, N. Y., Health Officers Association of N. Y.

September 7-10, Holyoke, Mass., New England Waterworks Association.

September 8-10, La Crosse, Wis., Wisconsin State Medical Society.

September 9, San Francisco, Cal., California Tuberculosis Association.

September 9, Cheyenne, Wyo., Northwestern Tuberculosis Conference.

September 10-11, San Francisco, Cal., Southwestern Tuberculosis Conference.

September 13-17, San Francisco, Cal., American Public Health Association.

September 14-15, Springfield, Ill., Illinois Health Officials and State Department of Public Health.

September 15, Minneaplis, Minn., American Roentgen Ray Society.

September 16-17, Springfield, Ill., Illinois Health and Welfare Association.

September 20-24, San Francisco, Cal,. International Association of Industrial Accident Boards and Commissioners.

September 22, Louisville, Ky., Kentucky Tuberculosis Association.

September 22, South Bend, Ind., Indiana State Medical Association.

September 24—October 3, Cleveland, Ohio, National Safety Council.

October 4-10, Montreal, Can., American Association of Occupational Therapy.

October 4-10, Montreal, Can., American Hospital Association.

October 7-8, Augusta, Me., Maine Public Health Association.

October 9, Ottawa, Can., Canadian Association for Prevention of Tuberculosis.

October 11-13, St. Louis, Mo., American Child Hygiene Association.

October 13-15, Chicago, Ill., Association of Railway Surgeons.

October 15-16, Roswell, N. M., New Mexico State Medical Society.

October 22-26, New York City, American Dietetic Association.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst and E. B. Starr.

Opportunities for the Employment of Handicapped Men.—An excellent series of bulletins has been prepared by the Harvard Bureau of Vocational Guidance and published by the Red Cross Institute for Crippled and Disabled Men. Each bulletin has been prepared by a person conversant with the industry. Those at hand include opportunities for handicapped men in the following industries: shoe, optical goods, coppersmithing, brush and rubber. As an example, that for the rubber industry describes the various processes in different branches of the industry and states for each one what type of disabled men may be employed. An appendix at the end lists the various common disablements, both surgical and medical, such as those of the arms, legs, hands, sight, hearing, nervous disorders, heart diseases, pulmonary diseases, etc. Bulletins vary from 35 to 120 pages, which, mostly, are illustrated and have a wealth of practical information for placing handicapped workers.—*Division of Education*, Harvard University, Cambridge 31, Mass.

✣

Occupation in Relation to Tuberculosis.—From the predisposing causes of tuberculosis we know that while the tubercle bacilli are widely scattered yet there is a large proportion of persons exposed to infection who do not develop the disease. Hence a suitable soil is a factor, and such soil is usually found in persons of feeble physique, enfeebled through any one of a great variety of causes. Vulnerability may be acquired by indoor life and dust occupations, especially with exposure to dampness, temperature extremes, and industrial poisons. Statistical data upon the relation of various forms of dust to the death rates, carefully selected from original monographs in the literature, constitute a chief part of this paper. One table shows quite clearly that tuberculosis is infrequent in occupations involving outdoor life combined with muscular activity as well as in liberal professions, presumably because of higher standards of living. The influence of weak stock, disease of digestive organs, alcoholism, venereal disease, industrial poisoning and dust exposure are shown. "Fortunately the effects of legislation and factory sanitation, together with the gospel of personal hygiene and higher standards of living conditions, which have been emphasized in the educational campaign against the great white plague, are strikingly shown by a most marked decrease in the mortality from tuberculosis in eight of the so-called dangerous trades in the State of New Jersey. * * * * It is less than 15 years since attention has been paid to industrial hygiene in this country; but in view of what has been accomplished during that brief period, I venture to predict that no country will make greater progress in social and industrial betterment than our own beloved United States. In the meantime no opportunity should be lost in the general campaign to emphasize the importance of personal hygiene and general sanitation." —Geo. M. Kober, *Public Health Reports*, March 26, 1920.

✣

Educational Work in United States Public Health Service Hospitals for Tuberculous Ex-Soldiers.—Several of the Army hospitals which have been turned over to the U. S. Public Health Service are being made over into sanatoria for tuberculous ex-soldiers. Occupational therapy embracing mental work and manual handicraft has been instituted which will lead to vocational training under the Federal Board for Vocational Education. At the present time an educational director and teachers have been stationed at eight points in the country.—*Public Health Reports*, May 14, 1920.

✣

Mortality Statistics of Wage Earners and Their Families.—This bulletin concerns wage earners residing almost entirely in urban communities and covers a period of six years (1911-1916), during which time there were 635,000 deaths for all age groups. Up to 25 years there is no marked variance in the mortality of wage earners when compared with that of the general population. After that age the mortality of male wage earners

becomes excessive. Excessive mortality for female wage earners shows itself after the age of 35. Among the causes given for these excessive death rates are arduous labor, hazardous occupations, large families with small incomes, low standards of diet, housing, clothing and medicinal services. The death rate of the colored policy holders is more than 50% in excess of that of the whites. The more important diseases are discussed in special chapters.—Dublin and Kopf, Metropolitan Life Insurance Company, New York City.

✣

Reports from Committee on Mortality from Tuberculosis in Dusty Trades.—Two preliminary reports have been prepared by this committee, which was appointed on December 31, 1917, by the National Tuberculosis Association, and is composed of Frederick L. Hoffman, Edward R. Baldwin, Alice Hamilton, H. R. M. Landis, A. J. Lanza, O. W. McMichael and Alfred Stengel. The reports reprint the correspondence of members and present various valuable abstracts from the literature. An outline for the investigation of the effect of marble and granite industries on tuberculosis is given. Mortality statistics showing an excessive death rate from tuberculosis and pneumonia for the granite cutting districts (1910-1918), and suggested plan of work for Niagara Falls and the county in which it is located are given.—U. S. Working Conditions Service, U. S. Dept. of Labor, or National Tuberculosis Association, New York City.

✣

Industrial Explosion Hazards.—This is No. 34 of "Safe Practices" dealing with gases, vapors, flammable liquids and dusts. The 12-page illustrated pamphlet is in the nature of an exposition of standards and procedures recommended. Dangers from the chief hazardous industrial explosives from such factors as ignition, heat, containers, storage tanks, gravity, displacements, conveyors, drying and cleaning processes are detailed. For dusts the following statement is made: "Comparatively few persons realize that nearly all finely divided organic or metallic substances are liable to explode when mixed with air and when ignited. As a general rule, the finer the dust and the more complete its mixture with air the greater is the danger of explosion." A list of thirty-eight dangerous dusts, mostly organic, is given. Building design, ventilation and cleanliness standards are stated with various diagrams.—National Safety Council, Chicago, Ill.

✣

British Provision for Tuberculous Ex-Soldiers.—A memorandum issued March 25, 1920, by the British Ministry of Health states that sanatorium treatment for tuberculosis has been found to be inadequate. Patients who return to their homes and former occupations are unable permanently to earn a living or maintain their health. Patients should pass through a threefold course: first, sanatorium treatment; second, training; and third, permanent settlement in suitable surroundings. The village settlement should be a natural development of the sanatorium and training colony where the patient may take up his permanent residence with the understanding that his earnings would have to be supplemented; but the community would gain by the prevention of the spread of infection and the fact that the patient would remain a productive worker. Measures have been taken to increase the capital grants for combating tuberculosis exactly along the lines indicated, with further time for looking into the question of village settlements.—April 30, 1920, *Public Health Reports.*

✣

Drinking Water Facilities in Industrial Plants.—An intimate relation exists between drinking water and health. Large sums of money are spent in the installation of drinking facilities in many manufactories. The basic requirements are four: (1) purity, (2) quantity, (3) palatability, and (4) distribution that will insure proper temperature at the time of consumption, convenient accessibility and preclusion of the transmission of disease from one person to another. The article discusses the physiological requirements of an adult person for various temperatures and degrees of activity, the amounts varying from two to ten quarts per day. Sanitary types of angle stream fountains are discussed and pictured; also the method of making a sanitary drinking cup out of a square piece of paper six inches in dimension. Standards for care in refrigeration are stated as well as types of systems for small plants and portable drinking fountains.—J. A. Watkins, *Safety Engineering,* February, 1920.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Francis H. Slack, M. D., and Mr. James M. Strang.

Epidemiology of Influenza-pneumonia.—The authors conclude both from their epidemiological studies and from laboratory research that indirect spread through the hand or hand auxiliary to the mouth is by far the most important and major route of contagion dissemination. Granting that this is true, preventive measures will not consist of periodic masking of the populace, but rather an intensive application of the rules of personal hygiene, hand hygiene, and especially the sanitation of eating utensils and the protection of food. They advocate actual sterilization of eating utensils, both in the army and in civilian life, and the use of boiling water for dishwater.—Lynch and Cumming, *Jour. Lab. & Clin. Med., March,* 1920.

✣

On the Resistance of Ascaris Eggs.—The eggs were collected from the patients' feces by mixing with water, filtering, and centrifuging, and tested against a variety of disinfectants and acids. The influence of the reagent on the eggs depends on the permeability of the egg covering. Formalin and sulphuric acid act to coagulate the albumin coating, thus preventing penetration. After long action, glacial acetic acid, hydrochloric acid, and nitric acid destroy the albuminous coating, but do not easily penetrate the inner chitinous membrane. Carbolic acid penetrates the egg membrane more easily and effectively than any of the other reagents used.

It is a most important and interesting fact that ascaris eggs are unable to develop and ultimately die in human urine which contains several ferments which act to dissolve the albuminous membrane. This action is more effective at 31° C. than at 10° C.—Sadao Yoshida, Osaka, Japan, *Jour. Parasit.,* March, 1920.

✣

Influenza Studies.—A study of successive influenza outbreaks during 1918 and 1920 at the Great Lakes Naval Station, containing 5,500 to 6,000 men, and in Camp Grant, containing 4,400 men, show an incidence of the disease during the second outbreak among those who had previously suffered equal to that among those with no history of influenza, and indicate that no marked immunity to the disease exists 12 to 15 months after a previous attack. There is no evidence that immunity may not be present at an earlier period.—E. O. Jordan and W. B. Sharp, *Jour. Inf. Dis.,* May, 1920.

✣

Bacteriological Characteristics of Tubercle Bacilli from Different Kinds of Human Tuberculosis.—The author examined bacilli from cases of tuberculosis meningitis, phthisis pulmonalis, and miscellaneous cases. The bulk of the article, however, deals with a careful study of tubercle bacilli isolated, from 52 cases of scrofulodermia. Of these, 32 yielded cultures with the characteristics of the human type of tubercle bacillus and 20 cultures with the characteristics of the bovine type.—S. S. Griffith, M. D., *Jour. Path. Bact.,* Feb., 1920.

✣

Streptolysin.—After careful quantitative studies, the authors have devised a medium with the idea of using the optimum serum concentration for maximal lysin production of a blood both efficient and accessible to general use. Sheep blood is believed to fill this need. To obtain maximal lysin production rather high concentrations of serum are necessary (20 percent). The number of red blood cells is kept down by making artificial combinations of heated serum and cells.

The serum cell mixture is made by combining four parts of heated serum with one part of cells. This mixture is then combined with liquid agar in the ratio of one part of the mixture to three of agar. The final concentration then is: serum 20 percent, cells, 5 percent, and agar, 75 percent. The proposed medium is not only a very suitable one for demonstration of the hemolytic zones of Beta streptococcus, but is in addition very efficient in the demonstration of multiple concentric zones of green production and hemolysis for Alpha streptococcus and pneumococcus.—de Kruif and Ireland, *Jour. Inf. Dis.,* April, 1920.